Amateur Radio

VOL. 51. NO. 6 JUNE 1983

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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

Concluding — TO HEARD & BACK
— RF RADIATION

Mini Report — 47th CONVENTION
AMATEUR TV goes Bush

Rules for 1983 RD CONTEST

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amateur radio

. . in this issue . .

Photo by Bill Magnusson VK3JT

A 430 MHz phased array with screen reflector used for fast scan TV and a pair of 4 el quads for VHF. (See story page 14.)

DEADLINE

All copy for August AR must REACH PO Box 300, Caulfield South, 3162 no later than 24th June.

Enquiries and material to:
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TYPE	SERIES No.	SECONDARY Volts	RMS Current
30 VA	1X010	6+6	2.50
70x30mm	1X011	9+9	1.66
0.45Kg	1X012	12+12	1.25
	1X013	15+15	1.00
	1X014	18+18	0.83
Regulation	1X015	22+22	0.66
18%	1X016	25+25	0.60
	1X017	30+30	0.50
60 VA	3X010	6+6	6.64
	3X011	9+9	4.44
	3X012	12+12	3.33
	3X013	15+15	2.66
90x30mm	3X014	18+18	2.22
1 kg	3X015	22+22	1.81
	3X016	25+25	1.60
	3X017	30+30	1.33
Regulation	3X028	110	0.72
12%	3X029	220	0.36
	3X030	240	0.33
160 VA	5X011	9+9	8.89
	5X012	12+12	6.66
	5X013	15+15	5.33
	5X014	18+18	4.44
110x40mm	5X015	22+22	3.63
1.6 Kg	5X016	25+25	3.20
	5X017	30+30	2.66
	5X018	35+35	2.28
Regulation	5X026	40+40	2.00
8%	5X028	110	1.45
	5X029	220	0.72
	5X030	240	0.66
300 VA	7X014	18+18	8.33
	7X015	22+22	6.82
	7X016	25+25	6.00
	7X017	30+30	5.00
110x50mm	7X018	35+35	4.28
2.6 Kg	7X026	40+40	3.75
	7X025	45+45	3.33
	7X033	50+50	3.00
Regulation	7X028	110	2.72
6%	7X029	220	1.36
	7X030	240	1.25
625 VA	9X017	30+30	10.41
	9X018	35+35	8.92
	9X026	40+40	7.81
	9X025	45+45	6.94
140x75mm	9X033	50+50	6.25
5.0 Kg	9X042	55+55	5.68
	9X028	110	5.68
Regulation	9X029	220	2.84
4%	9X030	240	2.60
50VA	2X010	6+6	4.16
	2X0011	9+9	2.77
	2X012	12+12	2.08
80x35mm	2X013	15+15	1.66
0.9 Kg	2X014	18+18	1.38
	2X015	22+22	1.13
Regulation	2X016	25+25	1.00
13%	2X017	30+30	0.83
	2X026	110	0.45
	2X029	220	0.22
	2X030	240	0.20
120 VA	4X010	6+6	10.00
	4X011	9+9	6.66
	4X012	12+12	5.00
	4X013	15+15	4.00
90x40mm	4X014	18+18	3.33
1.2 Kg	4X015	22+22	2.72
	4X016	25+25	2.40
	4X017	30+30	2.00
	4X016	35+35	1.71
Regulation	4X028	110	1.09
11%	4X029	220	0.54
	4X030	240	0.50
225 VA	6X012	12+12	9.38
	6X013	15+15	7.50
	6X014	18+18	6.25
110x45mm	6X015	22+22	5.11
2.2 Kg	6X016	25+25	4.50
	6X017	30+30	3.75
	6X018	35+35	3.21
	6X026	40+40	2.81
Regulation	6X025	45+45	2.50
7%	6X028	110	2.04
	6X029	220	1.02
	6X030	240	0.93
500 VA	8X017	30+30	8.33
	8X018	35+35	7.14
	8X026	40+40	6.25
140x60mm	8X025	45+45	5.55
4.0 Kg	8X033	50+50	5.00
	8X042	55+55	4.54
Regulation	8X028	110	4.54
4%	8X029	220	2.27
	8X030	240	2.08

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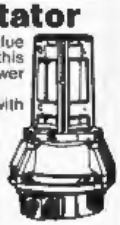

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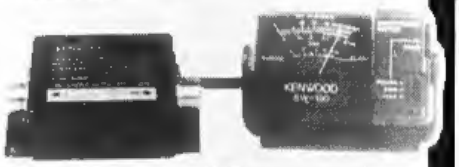

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a word from your EDITOR

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You can help in making the magazine a success by supporting our advertisers When you buy equipment say you saw it in Amateur Radio If you know of any potential advertisers then let Amateur Radio's advertising manager know Every advertisement helps the production team to put more articles in the magazine

The other way you can help make Amateur Radio live up to your expectations is to submit articles Articles are always required It may be a short article on something you have built or modified right through to a major technical article Articles on subjects of general interest to amateurs are also welcome

Photographs are very welcome They help to illustrate and enliven articles Photographs of amateurs and amateur radio events are of interest to many readers. Both slides and prints are useable

With your help the production team can make Amateur Radio even better in the second half of 1983

Gil Sones VK3AUI
Editor

INTERNATIONAL NEWS

AMATEUR RADIO SATELLITE SESSION SCHEDULED

The XXXIVth International Astronautical Congress, organized by the International Astronautical Federation and scheduled for Budapest Hungary, on 9-15 October 1983 will include a technical session devoted to amateur radio satellite systems. Mr Jean Grujau, F8ZS, and Dr Andras Gschwindt, HA5WH, will serve as co-chairmen of the session

CHILE: POSTAGE STAMP ISSUED TO COMMEMORATE 60th ANNIVERSARY OF RCC

1982 was a special year for Radio Club de Chile, which was founded on 12 July, 1922 In commemoration of the 60th anniversary of RCC, Empresa de Correos de Chile issued a special postage stamp on 29 December, 1982

The motif is in the foreground a dove in upward flight to the left an antenna tower with the logotype of RCC at the upper end and in the lower corner to the right a fragment of the terrestrial globe On the lower edge of the stamp are in two lines "RADIO CLUB DE CHILE • 60 AÑOS and "AL SERVICIO DE LA COMUNIDAD" The stamp price is 7 pesos

CANADA: SPECIAL WCY PREFIXES

To commemorate the World Communications Year Canadian amateurs will be permitted to use the following special prefixes between 17 May and 17 July, 1983

CI1	Newfoundland and (VO1)
C 2	Labrador (VO2,
CK1	Yukon Territory (VY1)
CY1 8	other provinces (VE1 8)

David Sumner K1ZZ

WIA NEWS

NZART ANNUAL CONFERENCE

The Annual Conference of the New Zealand Association of Radio Transmitters Incoporated will be held in Dunedin from the 3rd to 6th June, 1983

Whilst the president of NZART, Arthur Godfrey ZL1HV, was in Melbourne to attend the WIA Convention last year, he extended an invitation for the WIA to send two representatives this year.

Bruce Bathols VK3UV, President and David Wardlaw VK3ADW will represent the WIA in New Zealand as guests of NZART

WANTED

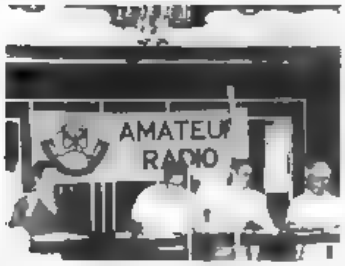
CONTRIBUTING EDITORS

Amateur Radio requires a contributing editor for the monthly column "AMSAT Australia"

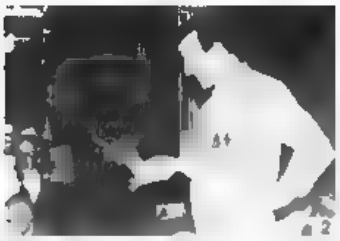
Also, contributing editors are required for two proposed columns "SSTV" and "Computer Use in Amateur Radio"

More details are available from The Editor PO Box 300 Caulfield South, Vic 3162

A Birds Eye View of the 47th WIA Convention



Brief Report of the 47th WIA Annual Convention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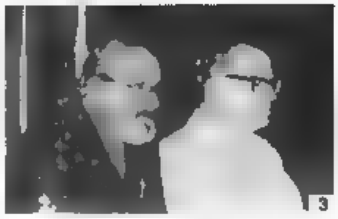

3

The 47th Annual Convention of the WIA was held over the Anzac Day weekend in Melbourne. Eighteen councillors, alternate councillors and official observers attended the intensive three day, live in session, to discuss policy items and matters of concern to the Australian amateur. The executive and several visitors also attended at various times.

As well as the usual reports of the President, Treasurer and various other sections of our diverse hobby, thirty agenda and general business items were discussed in depth

Possibly the most intensive discussion centred around the WIA submission to the proposed Radio Communication Bill. It was acknowledged that we are indeed fortunate to be given an opportunity to be able to comment on a Parliamentary Bill prior to having been debated in Parliament itself

In fact, the very existence of the new Radio Communication Bill would be one of the most important matters to affect the Australian amateur, therefore it was essential that we utilised all available avenues to assist the WIA in its submission


4

In this regard we owe a special debt of gratitude to Michael Owen, VK3KI and George Brzostowski, VK1GB for their special expertise and the tireless and much pressured CASPAR committee for their work in gathering information from each division and collating it within the short time constraints imposed upon us. (Refer May AR)


5

It is worthy to note here that Dave Shaw VK3DHF/VK0HI was awarded a special certificate of achievement from the VK6 Division acknowledging his efforts and activities during the recent Heard Island Expedition.

At the Official Dinner the convention welcomed Mr John McKendry from DOC in Canberra and Mr Gavin Brain, DOC in Melbourne, as the special invited guests. We were pleased to receive further confirmation that the WIA is held in extremely high regard within the Department of Communications and ministerial areas


6

In a light hearted manner the executive presented a special award to Neil Penfold VK6NE, the VK6 Federal Councillor, entitled the ARAORP (Australian Radio Amateur Order of the Raw Prawn) for services rendered to the Executive causing the most heartburn in respect of the Heard Island Expedition. The award consisted of a jam tin mounted on an irregular shaped piece of chipboard with a wooden spoon (for stirring) inserted in the jam tin


7

A more detailed report of the convention proceedings will be published in Amateur Radio at a later date

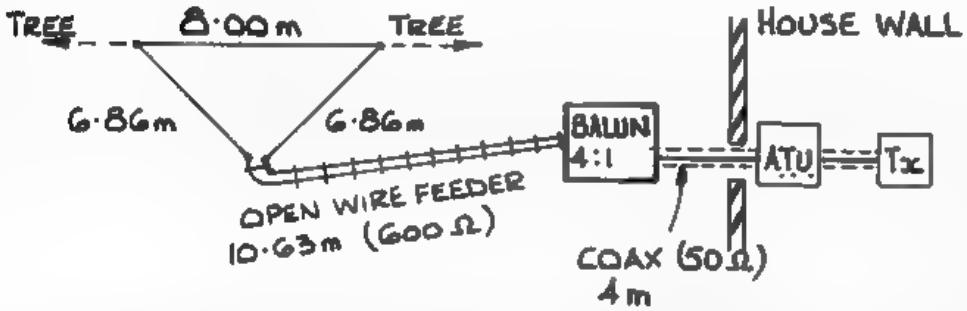
Bruce Bathols VK3UV
Federal President

Captions: 1. Members of Executive at Convention Table. 2. Neil Penfold accepts the ARAORP award. 3. Peter Fudge and Courtney Scott. 4. VK5 Councillors. 5. John McKendry, Assistant Secretary — DOC, speaking at Official Dinner. 6. Gavin Brain, Manager Regulatory Branch —DOC and Reg Macey, Secretary/Manager WIA. 7. Tony Tregale, Alan Foxcroft and Bill Rice at Convention

ANOTHER USEFUL MULTIBAND ANTENNA — THE DELTA LOOP

Guy Fletcher VK2BBF
Courtesy QUA (Hornsby & Districts ARC), January 83

The original idea for this antenna came from RadCom a year or two ago. Having reached Mark 6 in my search for a compact versatile and effective HF antenna, I tested and developed this antenna and have used it happily for about two years now.



My restrictions include the need for an unbalanced coaxial feed through a hole in the wall of the house and a maximum length of the antenna top of about 8 m. The open-wire feeder is home-brew using perspex spacers about 10 cm long. The balun is a commercial type. Tests show that the balun is reasonable from 3.5 to 21 MHz, but drops off at 28 MHz in that the transformed feed impedance is rather lower than it should be. The feeder and antenna are made from 16 SWG hard-drawn copper wire.

The resonant length of a full-wave loop in metres is given by

$$L = \frac{306.3}{f(MHz)} = 21.72 \text{ m at } 14.10 \text{ MHz} \quad \text{(Ref 1)}$$

This is slightly longer than one wavelength which is $\frac{299.8}{f(MHz)} = 21.26$ m.

The exact lengths of each side of the loop are not critical. I use 8 m for the top and 6.86 m for each side. The open-wire feeder is one half-wavelength long at 14.1 MHz which is 10.63 m.

On 14.1 MHz the feed impedance at the base of the loop is expected to be about 100 ohms (Ref 1). After one half wavelength of open feeder having an SWR of 6:1 but negligible loss the balun transforms this to ¼ x 100 = 25 ohms. A tolerable match with an expected SWR of 2.1 to a short length of 50 ohm coax. The ATU can well cope with this. The measured SWR on the antenna side of the ATU is 17:1 but on the transmitter side 1:1.

On 7.05 MHz the loop is only a half-wavelength round and the impedance is high, maybe 2000 ohms, but the open feeder of one quarter-wavelength transforms this down to a low-impedance feed at the balun. Alternatively the entire loop plus feeder perimeter is 40 m or one wavelength giving a low-impedance feed. Because the loop is smaller in relation to the wavelength at 7 MHz than at 14 MHz the feed impedance will be lower, say 25 ohms. The balun transforms this down to ¼ x 25 = 6.25 ohms. A rather poor match to the 50 ohm coax with an expected SWR of 8:1 but the losses in such a short length are still very small. The measured SWR on the antenna-side of the ATU is actually around 10:1. SWR meters are not at all accurate at such high values. But the ATU copes easily to present 50 ohms to the transmitter.

Again treating the whole 40 m perimeter of the loop plus feeder this total length is 3 wavelengths on 21 MHz and 4 wavelengths on 28 MHz giving low-impedance feeds on both bands at the balun. Probably around 200 ohms and 400 ohms respectively. The balun brings these down to 50 ohms and 100 ohms with expected SWRs of 1:1 and 2:1 respectively on the short length of coax. Measured values 1.3:1 and 2.3:1. Again the ATU fixes these to exactly 50 ohms for the transmitter.

Finally on 3.5 MHz the loop plus feeder perimeter is one half wavelength, and the balun sees a very high impedance, probably about 4000 ohms. Even when this is reduced by the balun to ¼ x 4000 = 1000 ohms this impedance is not very satisfactory for the coax with an SWR of 20:1. This difficulty could be solved by opening a link in the centre of the antenna top which would restore low feed impedance but this is not physically convenient nor would it radiate well. In fact, though the balun has too few turns for such a high impedance at 3.5 MHz and too low a voltage rating to be used at a low-current high-voltage point in the feeder it copes quite well. However the feed impedance at the ATU is still high at maybe 500 ohms and complex (capacitive). The ATU cannot cope alone with this at any settings but with the addition of a simple inductive stub to tune out the capacitance it works fine. This stub consists of a shorted length of 10 m of 50 ohm coax connected directly across the output of the ATU only on the 3.5 MHz band using a coaxial T-connector.

Another alternative frequently suggested for this kind of situation is to tie the two feeder wires together and feed the whole system as a single wire against earth. I have tried numerous antennas fed against earth and found them all very unsatisfactory especially on transmit unless a very good earth system can be devised. I have been unable to make a sufficiently good earth in my location with the result that most of the transmitter output power went into heating the garden. Balanced antenna systems are much superior or you might try the use of counterpoises or equivalent arrangements not fed against earth.

How does it work out in practice? Of course the system will not perform as well as a beam although it does have some directional characteristics. It seems to work well on all bands and perhaps even on 10 MHz. I have no trouble working most stations even into Europe on 21 and 28 MHz and with a little more trouble 14 MHz. The whole antenna incidentally is surrounded by tall trees and high buildings though the take-off west and north is reasonable.

As to its directional characteristics, on 14 MHz it is simply the driven element of a quad antenna, radiating broadside horizontally polarised. On 28 MHz theory suggests that it should radiate best off the ends with vertical polarisation. On 21 MHz off the ends with vertical polarisation and broadside with horizontal polarisation. On 10, 7 and 3.5 MHz it should radiate mostly broadside (horizontal) but a little off the ends (vertical). These calculations were based on the simpler-to-analyse square loop. When I can find time to reprogramme the problem for a triangular loop I expect to get essentially similar results.

REFERENCES
1 ARRL Antenna Book

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AMATEUR TELEVISION GOES BUSH

Dick Robbins VK3ARR/W8VNE
PO Box 5, Altona North, Vic 3025

Bill Magnusson, VK3JT, is quite a bush man and is often looking for venues for taking his students canoeing or for good VHF locations. About five years ago, when I was getting interested in 426 MHz TV, Bill suggested a spot in the Eastern Alps and I went along, taking a yagi, TV transmitter with a free running oscillator on 426, and a "cheapo" camera. Thus began the "Annual ATV Bush Expedition".

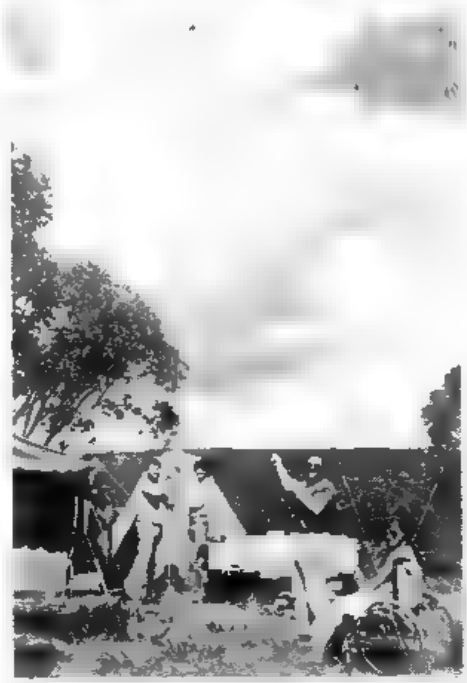
Received picture from VK3ZSD in Geelong, a distance of 200 km.

Although only a week-long expedition, we tried numerous locations and eventually realised, by some strenuous map work, that when we were in line with the Yarra Valley we had an excellent path for UHF communications back to Melbourne.

On the first expedition, the TV contacts were as primitive as imaginable. One night a QSO with Les Jenkins, VK3ZBJ, at Frankston we used a hurricane lantern for light, and Bill's black dog was no help for photogenics. A 12V fluorescent light has become part of more recent ventures and even a cheap B/W portapack was helpful in providing day time recording, and then the evening broadcasts didn't require any lighting.

Constructing the 2 m Quad are Damian Smith, George Bollas, VK3LA and Greg Oddo.

Erecting the 23 element, 426 MHz quad.



Upscope — 426 MHz quad.

The year for bigger and better antennas became the fad which keeps motivating expeditions. The phased array 2.5 metres square, although an inconvenient size, gave us the biggest thrill — a three hour contact — and points for the Ross Hull Contest for Ray Naughton, VK3ATN, at Birchip. This 360 km contact, with a picture quality of 2 to 3, ran for three hours and began at 10.00 AM, and Ray was using only a basic converter. The confidence builder was all the regular contacts of 160 km (100 miles) with western suburbs stations — Phil VK3AWG, George VK3LA, Cole VK3 and the ATV core people, Ron VK3AHJ, Ian VK3ATY and Ian VK3ALZ. Sylvester VK3ZSD at Geelong, nearly 200 km distance, was an encouraging regular with often breathtaking results.

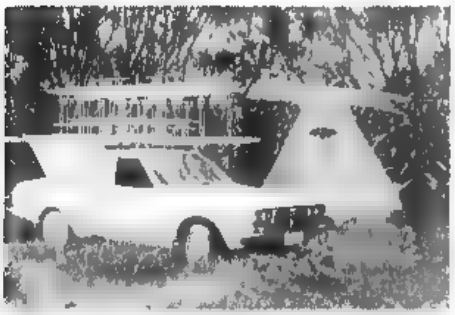
John McGibbon, Bill VK3JT, Huntly VK3ZE and Steve VK3YMY 40 km from nearest town.

The 1982 expedition expected visitors - a group walking the Alpine Walking Track. These dedicated walkers, mostly from the Frankston area, were provided with a chance to talk with their loved ones and friends. With everyone there, the population grew to eighteen and the track's campsite provided their last "refuelling stop". What a delightful symbol the camp fire provided that night. One of the walkers retorted that

Bill VK3JT, Steve VK3YMY, John McGibbon and Huntly VK3ZE resting on their laurels.

he always had a negative reaction to aerials, but seeing ours on this event was a most welcome sight.

The 1983 expedition is looking for more of the usual fun well into the Alps, but in line with the Yarra Valley, 426 MHz is on again. Very long quad yagis are the antenna extravaganza for the 70 cm and 2 m bands — extravagantly 6 and 4 metres in length. I am currently using both of these aerials and I would be pleased to demonstrate them if called on 147.80 MHz most evenings.



Method of transport for "The Flying Bedstead".

How about a challenge in the spirit of good fun and real amateur radio? How about you taking some simple 426 MHz TV gear, even if only an aerial, TV set, and find a spot out in Western Victoria, and let's give it a go? Did you give yourself an early Christmas present? Yes, did you invest in the finest preamp there is? One of those 432 MHz GaAs FET's that Ian, VK3ATY, and Howard VK3ZJY, are selling at a bargain. This will be a respectable opportunity for you to prove to yourself that, with reasonable equipment (even without a GaAs FET) 250 km is a very respectable distance for 70 cm communications without a lot of hard work. Why not give your receive system a big ego trip this year. After all, 12V converter, 12V TV set, 12V preamp and 12V car battery are a great combination.

Let us hear from you on 147.80 MHz and give us the opportunity to send you a picture and even receive one from you.

■■

THUMBNAIL SKETCHES

Peter Brown VK4PJ
16 Bede Street, Balmoral Qld 4171

PERCY WOOD VK4RO 1930

Yes Percy commenced experimenting with radio when he was but nine years old in 1918 and his father obtained an experimenters licence from "Mr J. Malone . . . Melbourne" not long afterwards in 1919.

In 1922 Perc would travel by train from Ipswich to buy parts from Price's Brisbane store but he avers that Homecrafts in Melbourne was *the* place to buy.

In his younger days he had a very free run of workshops and could actively experiment in radio and his broadcasts and aerials brought support from interested people in the form of books, parts and gramophone records.

Early in life Perc began his own radio and electrical business and Perc can tell of operating 4PW from City Chambers, in Ipswich, and using the Central Hotel lounge for live performances, one of which brought "Smith's Weekly" reporters from Sydney for three quarters of a page including photos. Also a concert broadcast from the North Star hotel must have been one of the few occasions, in those days, when a rented PMG line was used for amateur radio.

Most of those performances were for charity especially during the depression years.

Fortunately Perc likes writing, as may be shown by articles in "Queensland Times", and he will be compiling notes on amateur radio as he knew it many years ago. These notes will be well worth reading.

Perc not only keeps his "hand in" restoring old radio sets but has a fine workshop where he constructs working models of steam engines.

Still a keen golfer he won the Eric Scott cup in 1967 and twice won the Ipswich (UK) silver cup which is another story.

A proud achievement was a two way contact with Commander Byrd's second expedition, WFA, in the 1930s.

In retirement Perc overlooks the most popular series of beaches in Australia.

A T Bauer. 4AT, 1927.

Alf was operating 4QG, Brisbane, on top of the old State Government Insurance Building, from the time of the high power installation to the "take over" by the ABC.

Later joining G J Grice, he was radio servicing in Cairns for some years. At that time he had a permit and broadcasted several hours daily, using the firm's record library. The only publicity allowed was "owned and operated by A T Bauer, C/o G J Grice Ltd, Shield St, Cairns'.

During the war Alf was a technical Radar Officer when such was security that all instruction books were burned after courses.

Later Alf joined DCA maintenance, then OIC Radio Workshops and Test Equipment pool, then retired OIC Mater a s Inspection Section all of which Alf enjoyed because of the interesting equipment involved.

In his active amateur days Alf and 4HG would go to Bribie Is with guitars and a bank of accumulators, supplied by Willard Motors, and play to the boys at Wheeler Field, Hawaii.

Alf is proud of copying Kingsford Smith, during his Pacific flight, from 4QG which was radiating 5 kW, through al. the harmonics. Later Alf went to Eagle Farm with transmitting gear to broadcast the arrival.

Alf remembers when broadcasting a Dame Nellie Melba concert from the Museum Building he was asked to walk Dame Nellie to the mike. This was the only broadcast in Australia.

Alf's main retirement hobbies are bowls and gardening.

■■

Concluding

To Heard and Back

Dave Shaw VK3DHF/VK0HI,
9 Milton Street, Heathmont 3135

Story so far

On 31st December 1982 the Anaconda II set sail from Perth — destination Heard Island. All on board did shifts of sailing the yacht and many lessons were rapidly learnt.

Eighteen days out from Perth they anchored at Kerguelen Island for a few days break. Whist there, the radio ops had the opportunity of using Michel's FB8XAB Station to get a little practice for the onslaught once on Heard.

A couple more days sailing saw our intrepid venturers arriving at Atlas Cove, HI.

Now read on

Even though we arrived in the early evening with the sun just setting, three of the mountaineers managed to get ashore in the failing light. The next day, which couldn't come soon enough for us all, saw a hive of activity on the boat, in fact during the night there was no shortage of people for the anchor watch.

Al and I were in the third load ashore. The conditions at Atlas Cove were perfect with very little swell or wind to worry us. First ashore came the food and bedding for us for the next month, then the transceivers and other electronic equipment. A quick break for lunch and then back to the beach for the two large drums of diesel fuel and the two 3 kVA generators.

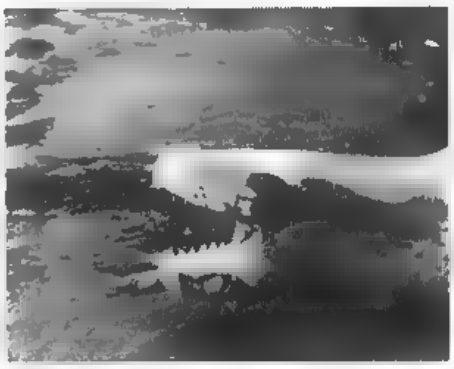
The old ANARE base at Atlas Cove is in various stages of disrepair, only three French ARBEC huts from the joint Australian French expedition in the 1970s, are in good condition.

The abandoned ANARE base.

The base was originally established in 1947 and permanently inhabitated until 1955 when the Australian government abandoned it to concentrate on its bases on the Antarctic continent. The records of the island indicate that up until the early sixties, the base was in good condition but the ravages of the weather in those latitudes have caused considerable deterioration since.

Half of the buildings have no roofs and the blowing volcanic sand is slowly sifting its way into the rest of the buildings. The old sealers stone buildings and equipment from last century have almost completely disappeared. Our shack was about 300 metres from the beach with the rest of the base giving us some sense of protection from the prevailing westerly winds.

We originally located the generators some distance from the operating shack, but after almost stepping on the elephant seals several times, when refuelling the tanks late at night, it was thought prudent that the generators be set up outside the shack.



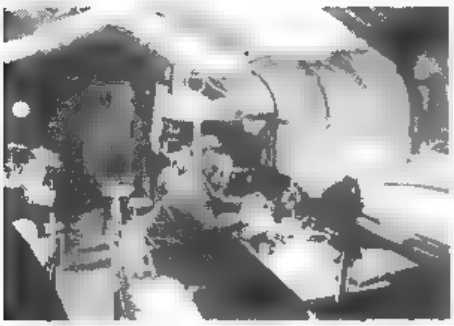
An unfriendly elephant seal.

With the generators running sweetly, the Butternut vertical antenna and an Icom 740 transceiver were unpacked, assembled and tested. We did have a bet with some of the mountain climbers about how long from our first CQ to our first QSO, we lost by ten seconds. The contact took forty seconds to establish and was with Hugh VK6FS, the next contacts followed quickly with Ken VK3AH and then Zedan JY3ZH. It did not take long and the "pile ups" had begun.

While I continued for a while on 20 metre SSB, Al was busy unpacking and establishing the rest of our superbly packed equipment. (This job was to take the next few days, but by the 21st we were on the air in earnest). Al and I took turns at the rig for the rest of the night as after carrying loads up from the beach each day, any rest from operating was very welcome.

The next day saw one of us at the transceivers all the time when the bands were open, with the other helping to get supplies and equipment ashore. The aerials and masts arrived ashore during the morning but did not get up to the shack

until later in the afternoon. With the incessant rain, everything to be landed on the beach from the Anaconda assumed a list of priorities, transceivers being moved straight to the hut, then bedding and food.



Al operating whilst Dave helps bring more equipment ashore.

Operating routine is established

Because of the amount of gear on the Anaconda, the arrival of equipment and supplies was at times not in accord with our immediate needs. Those on the vessel however had the job of sorting gear and equipment to stay at Atlas Cove or be taken down the island for the mountain assault.

With the typed waterproof check list prepared by the VK6 DXCC group and constant communications with the boat, by the end of the day everything to assure a successful expedition had been delivered ashore.

By now we had some 3000 contacts in the logs and were both keen to see the beam erected. Although without a beam we had established our operating routine to fit the conditions. North America opened between four and six o'clock in the morning (2300 and 0100 UTC) to drop out at about 1100 local (0600 UTC). Then there was a quiet period until our sched with the VK6s and the rest of those amateurs involved across Australia at 1030 UTC. After reporting progress, the band was generally open to Japan and Australia then until about midnight (1900 UTC) we worked into Europe. Most of the operating was concentrated on 20 metres as 15 metres opened only occasionally with ten being even less useful.

During our first three days assembly of the station and our living quarters was our prime concern. The third day saw the assembly of our triband three element Wilson System 3 beam. This had been specially strengthened by Don VK6DY so that it would survive the rigors on Heard. The beam and the mast, came with extensive instructions, with everything being ready to erect in about three hours.

We grabbed every person on the island to assist. Personal opinion is that it was the excess of willing hands which saw the tower neatly bend almost in two at our first attempt at its erection.

The mast was quickly straightened and strengthened with scrap steel sections found around the island within the hour. The second attempt saw our beam standing erect with no apparent ill effects from being bent.

Dogpiles prove indeed to be just that

The mast used, a Hills telemast, was steel guyed to teflon bearings at the top and halfway up. The rotator was located at the base and beam and mast rotated simultaneously. This system reduced the weight and wind loading to add to its reliability.

With our main aerials now erected, another transceiver was unpacked and all other work except eating was discontinued while propagation was open.

The "dogpiles" were indeed that and in those first hectic days it was not uncommon to have 60 to 70 kHz of twenty metres taken with people calling us and still only to have a contact a minute by deciphering two letters of a call.

Amid the dogpile.

The assembly of our whole station continued over the next week. When complete we were equipped with.

1 IC740 with inbuilt keyer for CW.
1 IC730 for SSB.
1 IC720A as backup on battery and also for checking propagation.
1 TS660 for listening on 10 and 6 metres.
1 FT680 for transmission on 6 metres.
2 LA1000 linear amplifiers and one 6 metre 100 W linear amplifier.
1 Rotatable Wilson System III Beam (strengthened).
1 20 to 10 metre log periodic beaming on Europe.
2 Vertical antennas
2 Daiwa antenna tuners.
2 Dipoles (one each on 40 and 80 metres).
2 3 kVA Dunlite generating sets.

Three IC730s were kept in reserve and fortunately were never needed. This equipment was all new and had been soak tested by the DX group prior to departure. Most of our equipment was purchased with money donated from the various WIA divisions with the equipment to be returned to them after the completion of the trip, although some was bought by the VK6 DXCC to be resold on return.

After seeing our beam and equipment brought up and assembled the mountaineers departed for their objectives on the island. The first of these was a planned landing on McDonald Islands, which were adjacent to our base island. Unfortunately conditions did not allow this. The next day saw their landing on Shag Rock. This was the first ever landing on this outcrop and was appropriately done on Australia Day the 26th January.

They then moved onto Skua Beach, their permanent base camp for the future assault on Big Ben. The weather was again favourable and by that night the Anaconda was at anchor in Atlas Cove.

Photo by Meg Thornton

Everyone helped to erect the antennas.

The base at Skau Beach.

The "antenna farm" on Heard Island. The 6 m beam has an American and an Australian flag flying below it.

As the mountaineers ascended the mountain, Al and I worked steadily at achieving as many contacts as possible for our time on the island. We did not have much time for looking about or appreciating the island, but when going out to fill the generator on our first day and seeing the mountain, it was hard to get back to the transceivers.

The 3000 metre snow and ice covered volcanic mountain Big Ben, dominates the whole island, with its many glaciers flowing down to the sea. The only flat land is the narrow strip around the coast where old receded glaciers have been and around the Laurens Peninsula.

The dominant Big Ben.

At the end of fifteen days we had made approximately eighteen thousand contacts and were looking forward to a very successful DXpedition, Murphy or rather the sun's indifference took hand however with a complete blackout. Conditions were never to pick up again to the standard they were in the first few days.

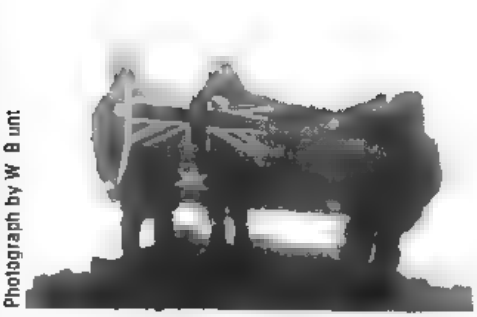
This gave us a chance to see some of the island and during the next couple of days we managed to see and photograph this isolated area. The island abounds in wildlife and a short walk from our hut were large numbers of elephant, fur and leopard seals. While around the coast there are rookeries of several penguin species. As the wildlife is unused to seeing humans they have no fear of us and walking through them is an experience that we felt privileged to experience.

Some very friendly wild life.

The Anaconda now departed to the safety of the harbour at Kerguelen Island and Al and myself were left to await the arrival of the Cheynes II. They arrived on the 6th February with objectives similar to our own. Aboard were mountaineers, scientists and their own amateur radio group.

Their amateurs set up approximately 400 metres from us in one of the ARBEC huts and soon more aerials were sprouting on the island. The scientists set up on the other unoccupied ARBEC hut about ten metres from us and once again the base was a hive of activity.

Because of the solar activity our contact rate dropped to about a quarter or half of that when we first activated the island. At night we were greeted with the magnificent light show of the Aurora Australis.



Photograph by W. Blunt

The mountaineers attain their goal.

While we were enjoying a slight respite from our activites and dining out with the scientists and crew of the Cheynes II, our mountaineers were steadily progressing to the top of Big Ben, much scientific work being done on the way. They established their final route to the top on the 7th of February and on the day of the 9th for only the second time in history was Big Ben conquered, the first time was in 1964 when the Patenalla expedition sucessfully ascended, this the highest mountain in Australia and its dependencies. Heard is a volcanic island and has magnificent views from the top of the mountain. The top is mushroom shaped with swirling hot air from volcanic vents melting snow around the cap of Mawson's Peak.

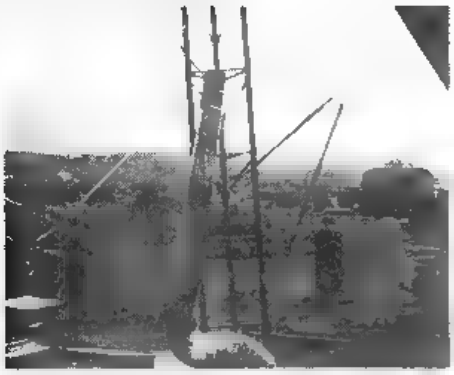
Anaconda returns from a heat wave at Kerguelen

Five people in all reached the top, two on the first day and three on the second then unfortunately the weather turned too warm and the climbers had to descend. The warm weather caused the snow across the mountain to wash away leaving the heavily crevassed ice slopes unsuitable and unsafe for climbing. This stopped the Austrian mountaineers from the Cheynes II reaching their goal.

The 10th February saw the return of the Anaconda from Kerguelen, where they had enjoyed a relative heat wave of 20C for their stay. Kerguelen is a sub-Antarctic island above the convergence which separates the warmer Indian Ocean from the Antarctic. Heard however is an Antarctic Island and its temperature hovers around 4C, although one day our temperature reached 10C. We were equipped with modern sleeping bags and electric blankets to brave the cold. With a couple of kerosene heaters gathered from around the base, moderate cooking, sleeping and waking conditions were achieved. We were quite comfortable.

We had all been warned of the extreme weather conditions we would be certain to encounter and these finally arrived on the 15th February. Strong winds swept across the cove and these combined with the willy-willys swirling off the glaciers caused the crews of both the Anaconda and Cheynes a few worrying moments. Our three element beam "bit the dust" in the afternoon closely followed by the vertical twenty minutes later. The beam had been steel guyed at the top and also half way up but non of these guys broke, rather it was

the twisting motion of the wind that brought them to grief

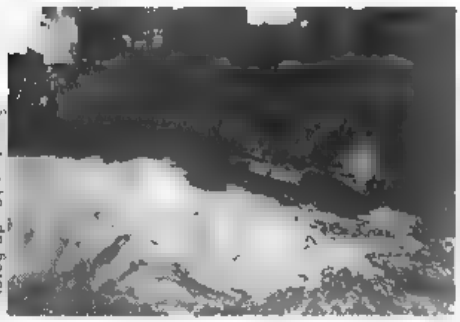


Bent and twisted antennas after strong winds.

As the log periodic had already been taken down the only aerials left standing were the dipoles and the 6 metre Werner Wulf beam with the Australian and American flags flying beneath it

As the Cheynes was leaving the next day with no sign of the weather improving, our captain radioed to enlist the aid of their small boat and we could leave also. We managed to get most of our equipment off with their help. Our two inflatable rubber boats were still at Skua Beach with the mountaineers

Unfortunately, the Cheynes small boat broke free as they departed Atlas Cove in the evening and they asked us to help pick up their mountaineers awaiting at the beach further down the island



Photograph by R. Young

Austrian mountaineers are returned to Cheynes by rubber boat.

The next day we were greeted by our mountaineers coming around the island in the rubber boats and another couple of hours saw the Austrian mountaineers safely aboard Cheynes and their departure from the island with a jury rigged sail

We then headed to Skua Beach to load the mountaineers equipment. As there were still some scientific studies to be completed three people were left at Skua Beach whilst the rest returned to Atlas Cove

We spent another three days at Atlas Cove using a transceiver with batteries and the straightened driven element from the three element beam and we managed to increase our number of contacts to thirty thousand for the expedition. The operating time was interspersed with helping the scientists take penguin blood and other samples from the cove.

On the 21st February we finally departed Atlas Cove for good with the satisfying knowledge that we had alleviated the need for Heard VK0, and feeling elated to have worked two American stations using only one watt.

After picking up the rest of the party from Skua Beach all sails were set for home. Turning with the wind on the Anaconda we covered about 240 nautical miles a day for the first week and passed the Cheynes in full sail on the third night out.

Two helicopters greet us in the Gulf

It was still cold on deck but with the wind behind us on our way home no-one seemed to notice the chill too much. After about two weeks we sailed into Port Adelaide after just under three months away from the Australian mainland.

Photograph by Neil Penfold

A warm welcome awaits Anaconda as she sails into the Port of Adelaide.

Our arrival in Adelaide was like a Royal welcome with two helicopters to greet us in the Gulf and a crowd to greet us on the wharf. It was a great surprise to find fresh fruit, ice cream and of course plenty of beer waiting for us, as these had been in short supply on the island

An afternoon at Ian VK5QX's QTH and later at night seeing Adelaide was a welcome relief from being on the boat, with the abundance of fresh food and drink and then being able to sleep without being woken to do a watch. The next day it was back to the boat for unpacking and cleaning, then the adventure was just about over.

Neil VK6NE, his son Vaughn and Nano VK6UN had driven over from Perth to welcome us back and they had done most of the unpacking and loading before Al and I got back to the boat.

That evening after the boat had been scrubbed clean there was a mayoral reception at the Port Adelaide Town Hall which was a fitting end to a successful expedition and one which we were all honoured to attend

After achieving most of the aims we set out to do I would like to thank all who contributed to the expedition as without the assistance of the associate members, the dedication of the organisers and the plain hard work of many the trip could not have been the success it was

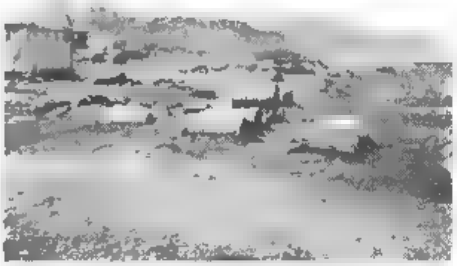
No article would be complete without a list of the crew of the Anaconda II, the mountaineering expeditioners and the members of the VK6 DXCC who were part of the many amateurs world wide that assisted us to achieve our goal

The Anaconda crew comprised of Josko Grubic (Owner and Captain), Ian Grey, John Clancy, Ian Howden Dave Fields and Kevin Fitzgerald

The expeditioners were Bill Blunt, Ross Vining, Meg Thornton, Martin Hendy, Jonathon Chester, Alistair McGregor, Michael Golding, Rob Easter, Pauline English, Steve Tremont, Robert Hawkins, Bill Meachem, Al Fisher VK6AHI/K8CW/VK0CW and Dave Shaw VK3DHF/VK0HI

The VK6 DX Chasers Club members include Don Reimann VK6DY, Hugh Spence VK6FS, Neil Penfold VK6NE, Nano Boegheim VK6UN, Nick Nicholls VK6XI and Gill Weaver VK6YL

Antarctic inhabitant.



ANARE base.

Photography unless noted by Dave Shaw VK3DHF

HI COMPETITION WINNER

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MODERN MILITARY SURPLUS EQUIPMENT

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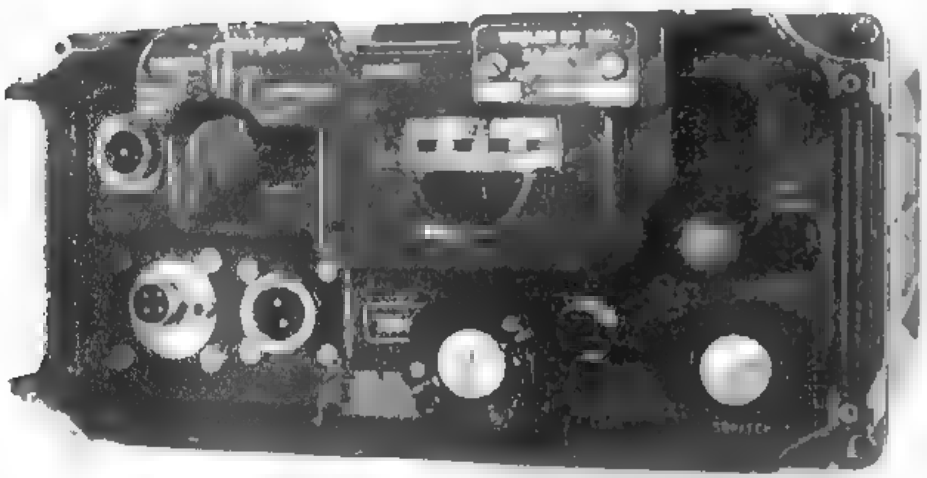
Wireless Set B47

The B47 is a low power FM transceiver, VFO tuned in one range from 38 to 56 MHz. It was intended for short range communications with infantry who would be carrying a man-pack rádio such as the AN/PRC10.



SPECIFICATIONS

Power requirements.
24V DC at 2 5 amps
Frequency Coverage
38 to 56 MHz
Mode of Operation
Transmission and reception of FM
Transmitter — power output
LP (low power) — approx 20 MW
HP (high power) — approx 600 MW
— Deviation
4.5 kHz for 20mV to mic input
7 kHz for input of 20 mV to 200 mV to mic input
Microphone 600 ohms
Receiver-Sensitivity
1 25 microvolts for 10 dB quieting
Selectivity
— 70 kHz at 3 dB
— 260 kHz at 60 dB
Antenna.
75 ohm via a co-axial plug
IF Frequency 4.3 MHz
Dial calibration
100 kHz per division
AF output
150mW into 50 ohms
Weight. Approx 15 kg

VALVE LINE UP:

Serial No.	Type	Function	Equivalent
V1	CV4010, CV850	1st RF amp	6AK5, EF95
V2	CV4010, CV850	2nd RF amp	6AK5, EF95
V3	CV4015, CV131	Local oscillator	6065, EF92
V4	CV4010, CV850	1st IF amp	6AK5, EF95
V5	CV4010 CV850	Limiter	6AK5, EF95
V6	CV469	Discriminator diode	EA76
V7	CV1833	Neon voltage stabiliser	0B2
V8	CV4010, CV850	Reactor driver	6AK5, EF95
V9	CV4040 CV416	Oscillator/power amp	6F17
V10	CV469	Discriminator diode	EA76
V201	CV4010, CV850	2nd IF amp	6AK5, EF95
V202	CV4010 CV850	3rd IF amp	6AK5, EF95
V203	CV4010 CV850	Receiver Limiter	6AK5, EF95
V204	CV469	Receiver discriminator	EA76
V205	CV469	Receiver discriminator	EA76
V301	CV4010, CV850	AF amp/squelch driver	6AK5, EF95
V302	CV4010 CV850	AF output	6AK5, EF95
V303	CV4010, CV850	Noise amp and filter	6AK5, EF95
V304	CV469	Squelch rectifier	EA76
V305	CV4015, CV131	Mic amp	6065, EF92
V306	CV469	AMC rectifier	EA76
V401	CV2213	Dial light neon	Not known
V402	CV2213	Dial light neon	Not known
V403	CV4010, CV850	Calibrator oscillator	6AK5, EF95
MR1	CV425	Crystal mixer	0A74

The serial numbers of the valves indicate the chassis sub-unit on which they are fitted and these references are carried through for all components.

1 to 199 RF sub unit eg R113
201 to 299 IF sub unit eg R213
301 to 399 AF sub unit
401 to 499 Calibrator and centre frame unit
501 to 599 Power Supply Unit

PRINCIPLE OF OPERATION

Receive RF signals feed through tuned circuits to two RF stages V1 and V2 and then to the crystal mixer MR1 The local oscillator V3 operating between 42 3 and 60 3 MHz also feeds to MR1 The resultant 4.3MHz frequency goes through three stages of IF amplification V4, V201, and V202 to the limiter V203 The limiter output goes to a discriminator V204, V205, then to a filter network which produces AF, noise at 10 kHz and a DC voltage The AF is fed to AF amplifiers V301 and V302 then to the output transformer

The noise output is fed into a noise amp V303 and the output rectified by the squelch rectifier V304. The DC signal from V304 is fed

as bias to V301, the first AF amp, which also acts as a control for the squelch relay RLA/1. A front panel control sets the squelch level.

TRANSMIT

V9 is a master oscillator power amplifier, MOPA, tuned over 38 to 56 MHz and frequency modulated by a ferrite reactor in the plate circuit of the reactor driver V8. A neon stabiliser V7 maintains frequency stability despite variations in supply voltage.

Input to V8 consists of DC from the Automatic Frequency Control, AFC, system, plus AF from the microphone amp V305 and AF negative feedback. The AFC is derived from stray transmit signal which gets into the receiver, and thence to the narrow discriminator V204, V205 and to the sidechain wide discriminator network-V5, the AFC limiter, which receives 4.3 MHz signal from V4 into V6, V10 the discriminator.

Automatic modulation control AMC is obtained by rectifying the sidetone signal from the receiver in V306 and using this as bias to the mic amp V305.

On low power resistance is simply switched into the aerial line to dissipate some of the transmit signal.

The calibration oscillator V403 switches a 1 MHz crystal in the Cursor Adjust switch position and a 100 kHz crystal in the Channel Adjust position.

POWER SUPPLY

The PSU is built into the rear of the case and uses a self-rectifying vibrator and a transformer and thence to a filter network.

Voltages required in the set are:
HT: +175 VDC at about 80 mA
Filaments: 6.3 VAC at about 3.5 A
Mic Amp +6.3 VDC at about 200mA
On/Off Lamp 12 VDC at about 100 mA
Relay Supply 12 VDC at about 140 mA
AFC diode heaters. 12 VDC at about 140 mA

The DC voltages for the mic amp heater, lamp and relays are obtained by dropping resistors on the 24 VDC input line.

The voltage adjusting relay RLD/2 shorts out series resistance if the input voltage drops.

There is a start up circuit to prevent excessive arcing of vibrator contacts upon first switching on. A starting resistance is shorted out by RLE/2 when the voltage across a capacitor C521 is sufficient after about 1 second.

FRONT PANEL INTERCONNECTION PLUG — SKT405

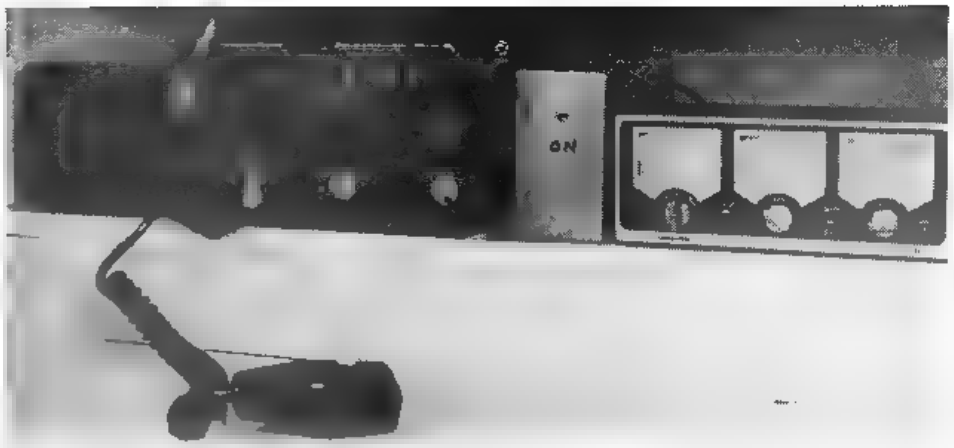
The pin connections are
A — microphone input
B — microphone input shield
C — no connection
D — Press to talk switch
E — Rebroadcast earth
F — 24V DC switched output
G — Audio output
H — Limiter grid current (S-meter output)
J — No connection
K — Voltage control relay
L — No connection
M — Audio output

FRONT PANEL POWER SOCKET — SKT403

A — + 24 VDC
B — Earth

MODIFICATIONS

(1) To operate the B47 make the following connections.
75 ohm co-ax to the aerial socket
+24 VDC to pin A of the Power Socket
Earth to pin B of the Power Socket



The authors B47 with outboard amp and SWR unit.

If you obtained a Power Lead this is simple.
600 ohm microphone to pin A of interconnection plug
600 ohm microphone shield to pin B of interconnection plug
Pin C to earth internally to a convenient earth tag
one side of a PTT switch to C
the other side of the PTT switch to D
headphones or a speaker to pins G and M
S — meter to pin H
S — meter return to pin C
Pin K to Pin C if input voltage is less than 30V

(2) As with the R210 there is room to remove the interconnection plug altogether and fit an aluminium plate across the hole. Into this plate mount a 4 pin microphone socket eg Dick Smith P-1824, and an earphone socket eg P-1231 for your speaker, and a sub-mini socket eg P-1220 for your S-meter connection.
If you don't wish to alter any of the sets described in this series, then obtain an A or B harness and one of the control boxes, such as a J Box. Remove the 12 pin plug from the control box and fit it on to a small box into which you can mount the mike, speaker and S meter sockets and wiring etc. Connect your new control box to the set via the harness. Ensure that you retain the same wire relationship ie Pin A to socket hole A, B to B etc.

(3) A 0-1 mA meter in an external box with a suitable trimmer pot in series can be connected to pins H and C earth as an S-meter. Adjust the pot so the strongest signal is at FSD and then other signals are just relative.

(4) Audio output level is set by RV301, a pre-set pot on the rear of the AF chassis. It has a locknut and is sealed with paint and is very fragile so be careful when adjusting it for comfortable speaker volume.

(5) You will probably find that as the set warms up you have to keep re-adjusting the front panel squelch and if you run out of adjustment you need to re-adjust RV302 next to RV301.

(6) The Aerial Tuning Unit ATU No 8 was used to match to an 8 foot rod antenna but it is useful to match the 75 ohm output to 50 ohms. Rotate the antenna tuning knob for maximum reading on the tuning meter.

(7) Power output of 0.5 watts into 50 ohms is adequate for local contacts but for more power you can add an external amplifier with a carrier operated Tx/Rx relay. The B47 is very compact so the following modifications are difficult. They have all been carried out but you will have to judge whether they are worth the effort in your case.
Para 7B — Connect pin 13 to pin 6 on TS402, or alternatively pin 23 to pin 18 on SKT401. This connects the centre zero tuning meter on receive & transmit as well as during calibration and will allow you to tune in a received signal exactly. One word of caution, if when you transmit the meter needle moves off centre don't change the tuning or you and your contact will be chasing each other up and down the band trying to net. Instead, adjust trimmer capacitor C80 to bring your transmit frequency to centre zero so that it will be the same as the receive frequency.

(8) The tuning meter is not easy to see as it has a black face and dirty grey pointer. It is possible to remove the front panel and move it forward sufficiently to remove the meter. The meter scale can be removed and painted white and the pointer black. Be very careful with the meter glass as it cracks easily (I found out the hard way!)

(9) At the same time the HT power to the dial lights can be moved from pin 1 of the calibrator terminal strip TS403 to pin 2 of the terminal strip TS402 so they are on all the time.

(10) Strip out everything from the power supply, except the choke and smoothing capacitors and the socket that mates with the set. Fit a compact 240V transformer with suitable secondary voltages. Use silicon rectifier diodes for the HT and the mic amp filament voltages. I thought of switching the 240V from the front panel but decided it could create problems and be dangerous.

(11) Replace the squelch pot with a dual concentric of suitable values and use one section as an audio control. Delete RV301 and run shielded wire to the connecting points.

(12) Remove the front panel! Remove the ON/OFF switch and the power ON light. Make a rectangular cut-out to fit an edge-reading S-meter. Fit a sub-miniature ON/OFF switch and if you wish, an LED power indicator.

(13) Whilst the front panel is off, cut off the protruding aluminium surround and handles and file the panel smooth. This gives a bit more access to the controls. Paint in your favourite colour.

HOW DANGEROUS IS RF RADIATION?

— Part Three

In this our third and final article of possible RF radiation hazards, the matter of Microwave RF hazards is discussed. The article was first published in Radio Communication, April 1982.

We trust that all WIA members have gained a little further information from this series of articles, and we invite your comments either by letter to the editor or direct to your division. —

MICROWAVE RF HAZARDS

By D S. Evans, PhD, BSc, FIM G3RPE*
RSGB microwave manager
Reproduced from Radio Communication Apr l 1982

An earlier article[1] introduced the general topic of the safety or otherwise of RF sources such as transmitters. It was pointed out that a hazard could exist if parts of the body absorbed sufficiently large amounts of RF energy to cause overheating. By the very nature of the hazard, it is impossible to specify any absolutely safe or unsafe level of RF power with any precision. However, the main conclusion of the article referred to (as well as others of a similar nature) is that with typical amateur HF and VHF stations where the antennas are mounted well above ground level, the measured RF levels at points of close access generally are at least 100-fold down and up to several orders of magnitude lower than the standard "safe" level of 10 mW/cm² even when using full legal power. In these practical cases, therefore, there clearly are few problems, and even arguments about what constitutes a "safe" level become somewhat academic.

However, the RF level associated with even relatively low-power transmitters can increase to an unacceptably high level as one gets close to them, and the article emphasised the care that must be taken in testing equipment on the bench with covers removed or with unscreened dummy loads. Handy-talkies, especially those using "rubber duck" antennas, may represent a hazard if their power output exceeds a few watts.

While the same basic principles regarding RF hazards apply also in the microwave area, there are significant differences compared with lower frequencies. For example, microwave equipment is more often operated near ground level for various reasons; there is more experimental development of equipment; and, for a given transmitter power, the RF power density close to the antenna will tend to increase with frequency. For these and other considerations, the topic of RF hazards at microwaves is best dealt with separately and in perhaps more detail than at HF and VHF.

Anyone involved in safety matters, whatever the area, will be well aware how difficult it is to maintain a sense of perspective. The illogicality of many safety procedures bears testimony to this. It is all too easy to "play safe" and lay down over-restrictive rules which, at best, simply inhibit activity and, at worst, become discredited and then ignored. The objective of this article is to attempt to develop a code of practice appropriate for day-by-day use by amateurs which will reduce to a minimum the risk involved to operators and bystanders. This code is summarised below. It is followed by an outline of the nature of the hazard, and the technical background employed in developing the code.

SAFE GENERATING PRACTICES WITH MICROWAVE EQUIPMENT

It is easy to demonstrate that the maximum RF power density associated with amateur microwave equipment will almost always be significantly lower than 10 mW/cm² at even a short distance away from the antenna. Indeed, it would be rather difficult to produce a practical system in which this level was exceeded at any distance. In any case, equipment parameters can be specified to ensure that it does not. However, where the effective aperture of a system carrying RF is small, eg the open end of waveguide and in feeds for dishes, the density can be very high and at a hazardous level. Thus for practical systems amateur microwave equipment will almost always be safe at almost any distance outside the structure of the antenna, and almost always will present a hazard within the structure, eg between the feed and a dish or inside a horn antenna. Therefore the only real risk is to operators and others who have access within a very short distance of these components.

The following is an attempt to define a code of practice for the safe handling of microwave equipment in an amateur context

1. It must be recognised that a potential hazard exists wherever equipment having a small effective aperture — such as the open end of waveguide and coaxial cable, horn and rod feeds carries RF above a level ranging from 1 mW at 24 GHz to a few hundred milliwatts at 1 3 GHz. As a guide, the input power should not exceed 2 5 mW/cm² of area of the aperture if the maximum RF power density is not to exceed 10 mW/cm²
2. For these small apertures, the maximum RF density is reached at a distance

typically λ/10 to 1λ from the aperture and falls rapidly by a factor of 100 at a distance of 1-10λ the potential hazard therefore exists over a short range only

3 When working in close proximity to equipment it is highly desirable to reduce power levels to below those given in 1 Where this is not possible, it is essential to dissipate the power in a screened load

4 One golden rule should be to ensure *no* RF is present before looking down waveguide because of the special vulnerability of the eye

5 With high-power equipment, a hazard may exist through leakage of RF from loosely-coupled connectors and waveguide flanges, and from the coupled output of directional couplers. The power *reflected* from surfaces may exceed a safe level Clearly, good practice demands care and discipline — and foresight

6 It is strongly recommended that the RF power fed to a paraboloidal dish reflector should not exceed 2 5 mW of its projected area This will ensure that the RF power density will nowhere exceed 10 mW/cm² except for the region between the feed and the dish. This limit corresponds to approximately 2 W for a dish 0.3 m in diameter, and 80 W for a dish 2 m in diameter and therefore is unlikely to present any practical limitations to the design of equipment

7 If the dish is fed using the Cassegrain system then it is recommended that the power delivered to the antenna should not exceed 25 mW/cm² of the area of the *sub-reflector*, or 2 5 mW of that of the main reflector, whichever is the smaller value In this case the leakage of RF around the sub-reflector should be less than 10 mW/cm².

8 Care must be taken to ensure that the feed is placed in the correct position at the focus of the dish. If further from the dish than this optimum value an image of the feed will be produced at a finite distance The RF power density at this point may approach that at the feed and therefore be at an unsafe level It is clearly good practice to align antennas using powers at the milliwatt levels as given in 1

9 If the power to an antenna is limited as in 5 and 6, then the RF power density will be at a safe level everywhere other than in the region between the feed and the dish As the power density at the feed may be very high, it is essential to limit access to this region, especially by those unfamiliar with the hazard This can be achieved either by restricting access to the site or by raising the antenna so that its height at the centre exceeds 3 m

10 In the case of horn antennas it is recommended that the power level should be limited to 2 5 mW/cm² of the area of the aperture For most horns this is equivalent to 2 x l² where l is the length of the longest side of the aperture

11 Higher power densities can of course be tolerated provided the operator of the equipment ensures that people cannot have access to these regions

NATURE OF THE HAZARD

As was pointed out in 1, the hazard associated with high RF levels is completely unconnected with radiation hazards associated with γ- or X-rays for example It is simply that of heating of parts of the body following absorption of the radiation, and therefore is similar to the hazard of overexposure to the sun or sitting too near a fire The effectiveness of this form of heating is well demonstrated by the microwave ovens with which amateurs share the 2 3 GHz band The main factor affecting the degree of hazard is the power density of the RF intercepted by the body Convenient units are either watts per square metre or milliwatts per square centimetre. A second factor is the frequency of radiation, which affects the proportion of incident radiation absorbed, the site of its absorption and the power density developed by a transmitter of a given output power. These factors will be discussed below

The effect of controlled heating can be positively beneficial, as in diathermy treatment, but large doses or even an accumulation of doses can lead to permanent damage to body tissues without a person necessarily being aware at the time that this damage is being done One of the more vulnerable organs is the eye: the viscous fluid within the eye is affected by heat in much the same way as the white of an egg, which is transparent at room temperature but becomes opaque when warmed. In the eye, as in the egg, the process is irreversible

Physiological characteristics also affect the degree of hazard. Thus at lower frequencies the intestines tend to be vulnerable because this is the region in which heat is generated and, being not particularly well-endowed with nerves, the effect is not immediately felt The eye is also vulnerable because it has no bloodstream to assist in dissipating any heat that may be generated, although the same effect will also be observed at extremities such as the fingers The effect of frequency of the radiation is quite critical Below about 150 MHz the human body tends to become transparent to RF radiation and therefore there is no real problem. At VHF the radiation penetrates deeply into the body, and the more vulnerable parts are the internal organs. At 1-10 GHz the energy tends to be dissipated in the skin and the organs immediately below the surface: at high power densities there is a sensation of warmth. Above 10 GHz energy is absorbed in the surface layers, although it appears that a high proportion of the incident RF will be reflected.

There is a further effect which relates the absorption with the size of the organ and the wavelength of radiation Radiation of a given density having a wavelength of 23 cm, for example, will have less effect on the eyes which have dimensions of one or two centimetres than radiation of wavelength of 3 cm, ie 10 GHz

Another potential influence of frequency is that of affecting the RF power densities likely to be produced in practice. For a transmitter of given power, the radiation density developed is roughly proportional to frequency. However, the amount of power that can be generated tends to fall by a corresponding amount, and thereby balancing the risk of a hazard

Frequency is also important in the way it influences the design and use of the equipment At lower frequencies, antennas have relatively low gain and coaxial cables have low loss: this means that antennas can readily be mounted high, usually tens of feet above ground level At high microwave frequencies, however, there is a tendency to operate equipment near ground level This is because antennas are so directive as to need some optical method for alignment and cable losses so high that the antennas need to be mounted on the transmitters These factors conspire to favour the antenna being mounted at head height which is the least desirable from a safety point of view. Despite the complexity of the overall situation, nevertheless the majority of problems can be covered simply by specifying a maximum power level to which parts of the body should be exposed, and this is described in the following sections

SPECIFICATION OF "SAFE" RF POWER DENSITIES

The previous section describes several of the factors affecting the degree of hazard. It is therefore not surprising that while all authorities agree that exposure to radiation having a density of more than 100 mW/cm² is likely to be hazardous unless special clothing is worn, there is room for discussion on what constitutes a 'safe' level. The Home Office and the Medical Research Council recommend a maximum density *for continuous exposure* of 10 mW/cm² This figure implies some extra margin of safety in an amateur context since exposure is unlikely to be classifiable as "continuous" or cover other than a small part of the body at one time. It is to be noted that some standards have allowed a maximum of 100 mW/cm² for periods up to 6 min of exposure.

On the other hand, it is to be recognised that much amateur equipment can be of an experimental nature and not necessarily fully instrumented Unexpectedly high radiation densities due to a power amplifier starting to oscillate, or to poor design of antennas, suggest a need for added caution It would therefore seem wise initially to adopt a temporary arbitrary lower maximum power density during initial experimentation — possibly 1 mW/cm² — until the equipment is properly set up.

Frequency (GHz)	Waveguide No.	Internal dimensions (cm)	Maximum power (mW)
1 3	6	16 510 by 8 255	340
2 3	8	10 922 by 5 461	150
2 3	9A	8 636 by 4 318	93
3.4	10	7 216 by 3 403	61
5 7	12	4 755 by 2 215	26
5.7	14	3 485 by 1 580	14
10	16	2 286 by 1 016	5 8
24	20	1 067 by 0 432	1 2

Table 1. Maximum power for 10 mW/cm² not to be exceeded at open end of waveguide

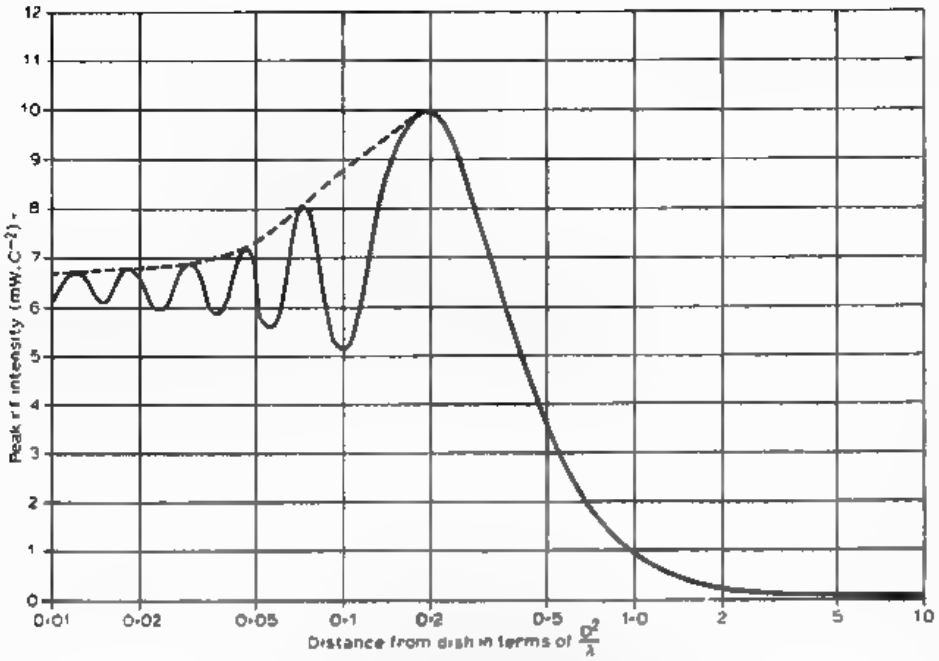


Fig. 1. Peak RF density relative to 10 mW/cm² as a function of distance from dish expressed in terms of D^2/λ, where D is the diameter of the dish and λ the wavelength of radiation, both expressed in the same units.

CHARACTERISTICS OF THE RADIATION PATTERN

It is useful to consider first radiators such as the open end of waveguides or the horn antenna and then to move on to parabolodial dish antennas. It can be shown that the pattern of radiation across the aperture is not uniform across a waveguide or horn in the H-plane, but follows a sine wave. Thus while the mean power across the aperture is simply P/A, where P is the power and A the area of the aperture, the peak power density is nearly four times this value, ie approximately 4P/A. The use of the latter value introduces a small safety factor which is increased by the use of the physical aperture for A rather than the electrical aperture.

The maximum power density is observed along the axis of the radiator, and falls to either side. In the case of paraboloidal dish antennas a similar pattern is observed, the feed being designed so as to reduce the power density at the edge of the dish by typically 10 dB. The maximum density is not, as perhaps would be imagined, at the aperture, but at a distance further from the dish given by $0.2\ D^2/\lambda$, where D is the diameter of the reflector in the same units as λ. This relationship is equivalent to approximately A/4λ, which value can be used as a convenient guide with other shapes of aperture.

Between the radiator and the point of maximum power density, the density varies in a sinusoidal manner at a level of a few decibels lower than the peak value. Beyond the peak the density falls rapidly and reaches a value 20 dB down at a distance given by $2\ D^2/\lambda$ (or $2.5\ A/\lambda$), and thereafter falls at a rate set by the inverse square law. The overall pattern of power density normalised in terms of D^2/λ is shown in Fig. 1 with reference to a peak density of 10 mW/cm².

OPEN ENDED WAVEGUIDE

As will become apparent, the radiation from the open end of waveguide represents probably the greatest risk in practice. It is compounded by the almost irresistable urge many people have to look into it.

The size of waveguide used at a particular frequency is set within fairly narrow limits: the broad width usually lies between 0.6 and 0.95λ, and the height usually is approximately 0.45λ. The value of A therefore is typically $0.27\lambda^2$—$0.43\lambda^2$. The maximum power P that can be fed to the waveguide without exceeding 10 mW/cm² peak RF power density is therefore $0.67\lambda^2$—$1.07\lambda^2$, where P is in milliwatts and λ in centimetres. The maximum density is measured at a distance of 0.13λ — 0.21λ in front of the aperture, and drops by a factor of 100 at a distance of 1.35λ—2.15λ. The maximum powers that should be applied to typical waveguides at frequencies of amateur interest so as not to exceed 10 mW/cm² are given in Table 1; they are seen to be at relatively low levels. This implies that in most cases the output of most transmitters constitutes a real hazard and therefore the waveguide should always be safely terminated in a screened load where access is permitted.

As an example, the maximum radiation density from a 100 mW 10 GHz transmitter based on WG16 reaches a peak value of 170 mW/cm² at a distance of approximately 5 mm in front of the waveguide aperture. However, this falls to 1.7 mW/cm² at a distance of approximately 40 mm from the waveguide aperture.

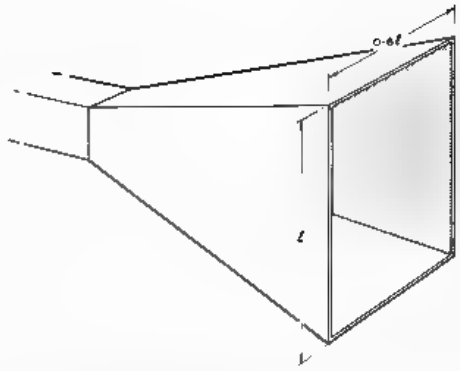


Fig. 2. Typical horn antenna.

HORN ANTENNAS

In the form generally used by amateurs, Fig. 2, horn antennas consist of a length of waveguide which is flared in both directions to produce an aperture having an aspect ratio of typically 0.8:1. The radiation density within the horn falls from a relatively high value at the throat of the horn to a low value at the aperture. For the peak radiation density anywhere *outside* the antenna not to exceed 10 mW/cm², the power in milliwatts fed to the antenna should not exceed $2 \times l^2$ where l is the length of the longer side in centimetres. Because of their relatively large physical size relative to their gain, horn antennas tend to be used at frequencies of 10 GHz and above. At that frequency a reasonably large horn would have an aperture of 30 by 24 cm. The maximum power that could be fed to this antenna without exceeding 10 mW/cm² at the aperture would be 1.8 W, a very considerable power at that frequency.

The power density at the aperture is given by $5P/l^2$. For a medium size (10 GHz) transmitter of output power 100 mW the density is only 0.6 mW/cm², ie at a very safe level. The corresponding density at the throat increases to 170 mW/cm², but this region is not easily accessible other than by deliberate action. For this reason, and the fact that they cannot be misaligned, horns tend to be a particularly safe form of antenna to use.

A feature of note is that the aperture of the horn is increased so the gain of the antenna increases, and therefore the effective radiated power is raised. At the same time, the larger the aperture the lower the power density at the aperture, and therefore the safer the equipment becomes. We therefore have the perhaps surprising situation that, for a given transmitter output, it is possible to have the situation that the higher the radiated power the safer the equipment can become.

PARABOLOIDAL DISH ANTENNAS

This is the most popular form of microwave antenna. It consists of a paraboloidal reflector to which RF is fed by some form of feed placed at its focus. There are two areas of importance, which can be dealt with separately: the hazard associated with the radiation reflected by the dish and which will be at a maximum at some distance outside its focus, and the hazard associated with the region between the feed and the dish.

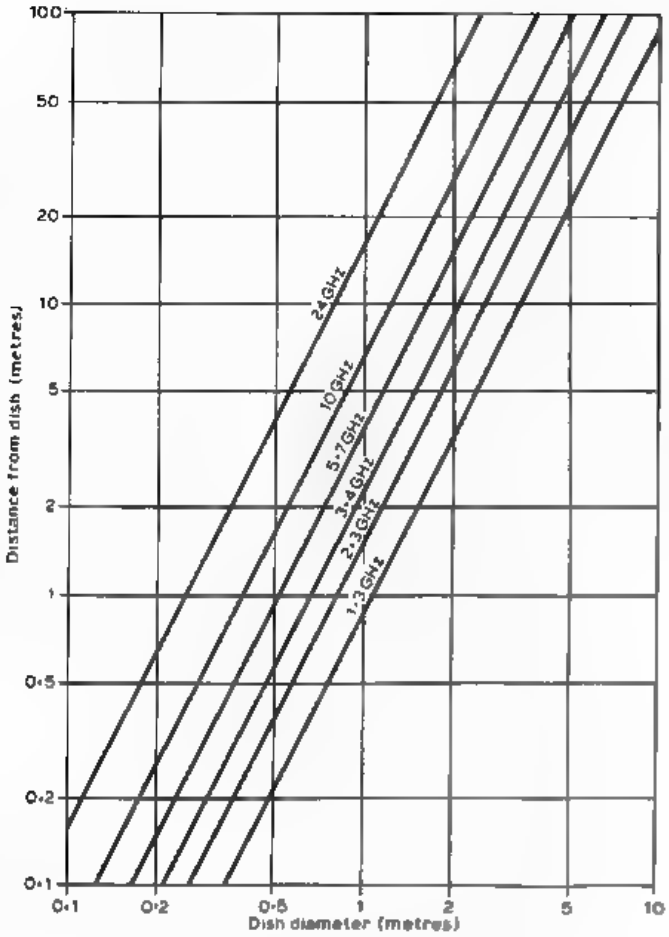


Fig. 3. Distance from dish to point of maximum RF density as a function of frequency and dish size.

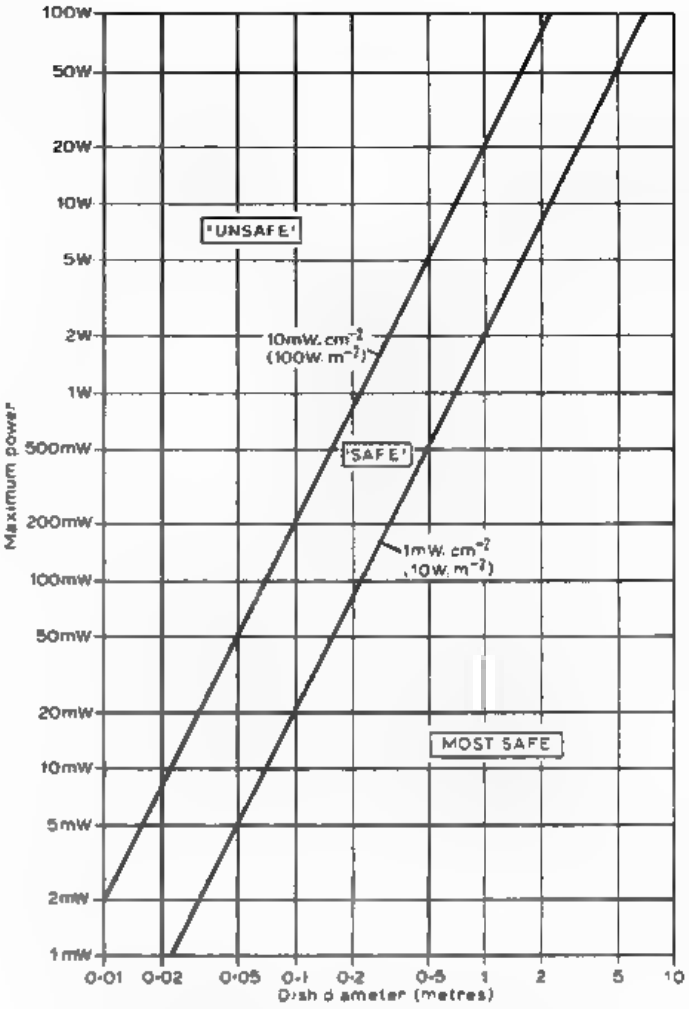


Fig. 4. Maximum power to be fed to a dish so as not to exceed an RF density of 1 or 10 mW/cm².

REFLECTED POWER

The pattern of radiation from a dish reflector is approximately a cone. This has an initial diameter equal to that of the dish, which increases with distance from the dish according to the beamwidth of the antenna. The radiation density across this cone is at a maximum at its centre, ie along the axis of the dish, and is designed to fall typically by about 10 dB at the edge of the cone. Along the axis the peak radiation density is found near the limit of the near field, ie at a distance $0.2\ D^2/\lambda$ from the dish where D and λ respectively are the diameter of the dish and the wavelength of the RF expressed in the same units. Values for frequencies of amateur interest as a function of antenna size are shown in Fig 3.

The peak radiation density in most cases will be observed at distances of 1 to 10 m from the dish, ie well beyond the focus. The peak radiation density corresponding to this reflected power is again given by the value 4P/A, where P is input power in milliwatts and A is the projected area of the dish in square centimetres. For this peak density not to exceed 10 mW/cm², the maximum power should not exceed the values

$P_{max} = 2\ D^2$ where P is in milliwatts, D (diameter) in centimetres

$P_{max} = 20\ D^2$ where P is in watts and D in metres

This relationship, together with that for a maximum density of 1 mW/cm², is shown as a function of dish diameter in Fig 4, with regions designated as "most safe", "safe" and "unsafe". Thus, for example, if a 1.5 m dish is available, provided that the power fed to it does not exceed 44 W, then nowhere outside the antenna structure will the power density be greater than 10 mW/cm². It should be noted that this relationship is independent of frequency. This means in practice that a high degree of safe operaton can be "built-in" a system by simply specifying its parameters. The above data of course presumes that the dish and feed are properly aligned: the effects of misalignment is discussed below. As was the case with horn antennas, for a given transmitter power, the larger the size of the dish the safer the equipment becomes, despite the fact that the effective radiated power is increased.

THE HAZARD ASSOCIATED WITH THE FEED

It was shown in the previous section that provided the power supplied to a parabolic reflector was related in the way described to its diameter, then the radiation density could be held to a safe level anywhere outside the antenna. This could be achieved in practice without placing too restrictive limitations on the equipment design. For example, Fig 4 shows that the minimum size of dish to be used with a 2 W transmitter should be 1 m diameter if the radiation density external to the antenna structure is not to exceed 1 mW/cm², or 20 W if not to exceed 10 mW/cm².

However, as the effective aperture of the feed supplying this power to the dish is usually much smaller than that of the dish, the radiation density associated with the feed will usually be at an unsafe level, and frequently at a hazardous level. The situation is somewhat similar to the horn antenna described earlier except that with a horn it is relatively difficult to physically reach the regions of high radiation density, whereas with a dish it is normally all too easy if the antenna is near ground level or not otherwise protected. The actual power density between the feed and the reflector will be set by the power of the transmitter and the dimensions of the feed. One of the simplest cases is that of the direct horn

feed, in which the horn is mounted at the focus of the dish with its aperture directed at the dish. The actual dimensions of the feed depend on the frequency of operation and the ratio of the focal length of the paraboloidal reflector to its diameter, in the manner described in **2**. If it is assumed that access to the inside of the horn feed is prevented, then the maximum power that can be applied to the feed so as not to exceed a radiation density of 10 mW/cm² as a function of the focal length/diameter (f/D) ratio of the dish and of frequency. These levels should be adopted if the system is to be operated at ground level for alignment.

Practical transmitters will normally generate significantly greater powers than those shown in Table 2. For a 1 W transmitter at 10 GHz, for example, the peak radiation density in front of a feed will be in the range of a few hundred milliwatts to a few watts per square centimetre depending on the f/D ratio of the dish. These levels are clearly unsafe, and it therefore makes good sense to operate the antenna in such a way as ensures that the operator and others cannot have access to that region of the antenna.

A popular second type of feed is the Cassegrain system, in which a horn feed mounted through the centre of the dish radiates a sub-reflector which in turn illuminates the main reflector. With this system the main risk would seem to be spillage of RF around the edges of the sub-reflector. If this is to be limited to 10 mW/cm², and the feed has a normal taper, in illumination of 10 dB, then the radiation density at the centre of the sub-reflector must not exceed 100 mW/cm². This is achieved if the power supplied to the antenna does not exceed 25 AmW, where A is the area of the *sub-reflector* in square centimetres.

Calculations of radiation density around dipole-reflector combinations are difficult. There seems little doubt that stray radiation is likely to be at a somewhat higher level than with horn feeds, and therefore correspondingly greater precautions should be taken with this type of feed.

Frequency (GHz)	Maximum power (mW) f/D = 0.25	f/D 0.6	f/D = 1.0
1.3	370	1400	4500
2.3	120	440	1400
3.4	60	200	660
5.7	25	70	230
10	6	20	70
24	1	4	13

Table 2. Maximum power to be fed to a pyramidal horn feed as a function of f/D ratio for peak density not to exceed 10 mW/cm²

THE EFFECT OF DEFICIENCIES IN THE ANTENNA SYSTEM

It is appropriate to refer briefly to a number of deficiencies in antenna systems which in some cases may lead to unexpected problems.

(a) Under-illumination of dish
In defining the maximum radiation density by the relationship 4P/A, the area A corresponds to the physical area of the reflector *assuming ideal illumination*. The use of a feed of too high a gain will result in under-illumination of the reflector so that its effective area is smaller than the physical area. This will lead to a higher power density close to the dish than would otherwise be expected.

(b) Over-illumination of dish
If the gain of the feed is too low, then an excessive amount of energy will spill over the edge of the dish. This will not be hazardous unless the power fed to the dish greatly exceeds the recommended value, as the density is normally designed to fall by typically 10 dB between the centre and edge of the dish.

(c) Feed positioned inside the focus
If the feed is placed between the focus and the dish, the reflected beam will be divergent. As this will reduce the power density, this condition is relatively safe.

(d) Feed positioned beyond the focus
This is a potentially dangerous case because the reflected beam will tend to converge to a point some distance in front of the dish, with the risk that local power densities will approach those at the feed.

ROD ARRAY ANTENNAS

This case deserves to be considered as a separate situation. In general terms the stray radiation from this form of antenna would be expected to be greater than either horn antennas, or horn-fed dishes, and therefore greater precautions should be taken. It seems probable that the radiation pattern at a distance will be similar to that of a parabolic antenna of similar gain, and therefore the present design information will be relevant.

OTHER PRECAUTIONS

With high-power equipment it should be recognised that there are a number of other sources of hazards. For example, the leakage of RF from loosely-coupled connectors and waveguide flanges or the coupled output from a directional coupler may be at a sufficiently high level to represent a risk. In some cases, the power *reflected* from some surfaces may be at an unsafe level. It is obviously wise to recognise these possibilities and to adopt the same high standards of discipline for RF as amateurs obviously already do with other hazards such as high voltages.

REFERENCES

1 "RF hazards and the radio amateur", R P Blackwell G8IZV, and I. F. White, G3SEK. *Rad Com* February 1982.

2 *VHF/UHF Manual*, D. S. Evans, G3RPE, and G. R. Jessop, G6JP. RSGB.

The Repeater Group L to R. seated — VK2DHR, VK2DDD, VK2APP, (chairman) VK2DBI, XYL of VK2APP. Standing — VK2ENH, VK2BQW, VK2DWT, VK2XAQ, VK2PAM, VK2DHO and VK2AMV. (Missing from group is VK2EEE). In the foreground of the photo are the cavity filters on the table at the left, the repeater right and solar cells standing against table.

Photograph by John Meagher VK2AMV

CLUB CORNER

John Meagher VK2AMV
87 Rankin Street, Forbes, NSW 2871

REPEATER GROUP

A group of amateurs from the "Weddin Repeater Group" are working towards establishing a repeater in the Grenfell area of Central New South Wales.

The proposed repeater will serve from Dubbo to Cootamundra, Young, Temora, Wyalong and hopefully Griffith, Parkes, Condobolin and Forbes. Tests already carried out from the proposed site have been most encouraging.

The repeater is to operate on channel 10-147.100 MHz and is presently under test in a temporary location at Forbes.

INTRUDER WATCH

Bill Martin, VK2EBM,
FEDERAL INTRUDER WATCH
CO-ORDINATOR
33 Somerville Rd. Hornsby Heights, NSW, 2077

In view of the fact of the recently-allocated new frequencies being available to the VK amateur operator, and bearing in mind the number of requests received at this QTH for information on 'where and when an intruder IS an intruder', I think it timely to include a list of the HF bands, and details regarding who can be expected legally to be present on the bands.

ALLOCATION OF FREQUENCY SPECTRUM FOR PURPOSES OF THE INTRUDER WATCH

160 Metres

1.800-1.825 MHz — Amateur Service is Primary Service. Exclusive to amateur operators.

1.825-1.875 MHz — Amateur Service is Secondary Service. Not Exclusive to amateur operators.

80 Metres.

3.500-3.700 MHz and 3.794-3.800 MHz

In International Amateur Radio Union, Region 3 the 80 metre band is shared with fixed services. It is not exclusive to the Amateur Service. RTTY and CW non-amateur signals cannot be considered to be intruders. But broadcast stations are intruders.

40 Metres

7.000-7.100 MHz — The Amateur Service is the Primary Service and this segment is exclusive to amateur operators. Any non-amateur signals are those of intruders.

7.100-7.300 MHz — Is shared by international broadcasting stations ONLY. Any non-amateur signal OTHER THAN broadcasters can be considered to be an intruder. Non-amateur RTTY and CW signals are intruders.

30 Metres

10.100-10.150 MHz — Shared with fixed stations — The Amateur Service does not have exclusive use of these frequencies. Broadcast stations are intruders.

20 Metres.

14.000-14.250 MHz — Amateur Service is Primary Service. This segment is exclusive to the amateur operators. Any non-amateur signals are those of intruders.

14.250-14.350 MHz — This segment is shared with Iran, The People's Republic of China, and the USSR fixed services. It is NOT exclusive to the amateur service. RTTY and CW signals which are non-amateur cannot be considered to be intruders. But broadcast stations are intruders.

17 Metres.

18.068-18.168 MHz — The Amateur Service shares this segment with fixed services. Non-amateur RTTY and CW are not intruders. But broadcasters are.

15 Metres.

21.000-21.450 MHz — The Amateur Service is the Primary Service. This segment is exclusive to amateur operators. Any non-amateur signals are intruders.

12 Metres

24.890-24.990 MHz — This band is shared, and non-amateur RTTY and CW signals are not intruders. But broadcasters are.

10 Metres

28.000-29.700 MHz — The Amateur Service is the Primary Service. This segment is exclusive to amateur operators. Any non-amateur signals are intruders.

Hopefully, the above details will clear up a few queries, and establish whether or not the signal you are monitoring should legally be there. Any enquiries on the Intruder Watch to your Divisional Co-ordinator, or to VK2EBM. 73 'till next month.

AR

John Tutton VK3ZC
31 Denham Street Hawthorn Vic 3122

RADIO AMATEUR OLD TIMER'S CLUB

Logs submitted for the March 1983 (20 metre) QSO Party between VK and ZL Old Timer's Club members were a little down on the previous one, mainly because propagation effects, skip, etc made contacts somewhat more difficult on this band. However although no logs were received from VK6 there were several stations active over there.

CALL	MODE	QSOs	AREAS	SCORE
VK3VF	CW/SSB	24	8	960
VK2SP	SSB	19	9	855
VK4OX	SSB	21	7	735
VK4AIX	CW/SSB	21	7	735
VK7RF	SSB	18	8	720
VK3XB	CW/SSB	20	7	700
VK3KS	CW/SSB	19	7	665
VK5RK	SSB	15	8	600
VK4CJ	CW	12	5	300
VK7CH	CW	11	5	275
VK7BJ	SSB	10	5	250
VK7JU	SSB	8	5	200
VK3XF	CW/SSB	10	4	200
VK3AMD	CW/SSB	9	4	180
VK3YW	CW	5	4	100
ZL2BD		19	7	665
ZL3AV		21	6	630
ZL2HS		19	6	570
ZL1BGJ		16	6	480
ZL2DM		15	5	375
ZL2US		12	5	300
ZL1GQ		8	4	160
ZL2AB		7	4	140

Members are thanked for the logs sent in and for the very kind comments made in them.

Remember that our Parties are held on the second Monday of August (40 m) and March (20 m) ie 8th August 1983 0800 UTC to 1100 UTC. Full details Amateur Radio February 1983.

All amateurs who have been licensed for a period of 25 years or more are eligible to join the Radio Amateur Old Timer's Club. A SASE (9 x 4) to the Secretary Harry Cliff VK3HC, PO Box 50, Point Lonsdale, Vic 3225 will bring you a membership application form.

AR

Please help INTRUDER WATCH by reporting all intruders.

LISTENING AROUND

Joe Baker VK2BJX
Box 2121, Mildura, Vic 3500

Since I was hatched in 1917 it would not be too far from the truth to say that I was brought up in that period between the wars which was known as the Golden Age of Wireless. King Bradman was on his throne knocking the opposition silly, Kingsford-Smith was doing wonderful things in aviation. De Groot helped Premier Lang to open the Sydney Harbour Bridge, the banks were closed, the Depression was upon us, relatives were on the dole, and us kids attending school in Campsie (Sydney suburb) were having bread and dripping for lunch and milk for a penny a bottle. Such was the time of my introduction to the magic of wireless.

A GREAT CRYSTAL SET

I was fortunate in having two great schoolmates — Tony Wilkinson of Robertson St, Campsie whose father was an ELECTRICIAN and therefore a veritable Edison in my eyes, and Ray Anderson who was known as the 'Marconi' of our school because he could work all kinds of wizardry with wires, globes and batteries which we scrounged from out the back of the local service station. Tony Wilkinson's father had installed, in their house, a giant sized crystal set that took up most of the table in their dining room. Eventually, much to the joy of this little boy, came the day when I was invited around to Tony's place to have tea with the family and listen to their wireless.

At this distance across the hall century or so, I can yet recall sitting at their tea table and drinking soup from a huge bowl big enough to fit my head into. After tea Tony and I retired to the room where the crystal set lay in all its glory on a large well varnished table. The coils were made of green silk covered wire — "honeycomb coils" — which could be moved towards and away from each other to help the tuning, and these were mounted on a base of polished wood with shiny terminals all over it — gee, what pride they took in crystal set construction in those, now far-off, days!

The headphones were the most technical looking parts of the set — they were probably Browns or BBC, and from these issued forth mysterious voices and music when a curly wire with a fine sharp point, called a cat's whisker, was placed ever so carefully on a shiny part of the ninepenny crystal which was inside a dust cover. Tony's father, having installed us on chairs beside the table, then took the phones apart, giving us one each and retired to another room to let us listen in quietness.

The station we were listening to was probably 2BL or 2GB, and the Children's Hour was on. Compering the programme was our Radio Uncle George (Saunders) ably assisted by his side-kick "Bimbo" whose real name I never did get to know. Uncle George and "Bimbo" were sending birthday greetings (2/6d I think it used to cost) and singing songs for just about every kid in Sydney, and thereupon I was smitten by a bright idea.

It so happened that a short time before this, we had learned a nursery rhyme called "Sing a Song of Sixpence" so I asked Tony (who, being my best mate, was wiser than an owl and knew everything) "how do we get this Uncle George and Bimbo to sing for us also?" Tony said that all we had to do was to take these headphone things away from our ears, put them in front of our mouths and bellow into them as loudly as we could. No sooner said than done, and remember that this was the Age of Wireless when, for two small boys with vivid imaginations, just about anything could happen if you wished hard enough. An in less time than it takes to write these lines it wasn't long before Uncle George and Bimbo were "Singing a Song of Sixpence" just for us!

WIRELESS VALVES

Although it was the Depression, my dad had a government job as a tram conductor at five pounds a week payable fortnightly after thirteen days of shift work in all weathers, and how he managed to provide for a wife and two kids beats me even now. It was a time when anyone with two jobs was frowned upon, yet there were those who wanted to pick up an extra quid or two when they could. Dad had a "trammie" mate who was always out to earn a few extra shillings or so as an electrician when he could, and Dad got him to come and install a few extra lights for us on our front and back verandahs.

Dad's mate had a ginger nut (had red hair), so I used to think of him as "Mr Carrot Top". I watched fascinated as "Mr Carrot Top" worked, cutting up all that conduit, pulling the wires through it, installing those wonderful switches with the round white knobs that had "On" and "Off" written on them, on the round batten boards. Much to my joy, my dad's mate took note of my interest and didn't shoo me away as others might have done, but encouraged me to watch as he worked.

Came the day when "Mr Carrot Top" brought along a mysterious round glass thing that was all silvery inside and had four prongs sticking out of its bakelite base. I was entranced by the look of the thing, the like of which I had never ever seen before. "Do you know what this is?" asked "Mr Carrot Top".

I shook my head in a positively negative sort of way. "Would you like to see what is inside it?" he then asked. I nodded my assent, not knowing exactly what spectacle I was about to behold, or if a fairy or genie might pop out of it.

Thus it was, that for the first time, I was introduced to a wireless valve (they weren't called radios in those days) and he then broke it open ever so carefully exposing the innards of the battery-operated triode. I can't remember whether or not 'Mr Carrot Top" tried to explain to me just how this valve worked (I probably wouldn't have understood anyway) but even though I didn't know what the glass thing did, the magic of it was that I did indeed know that this was part of a *new sort of wireless*, and a much better one than Tony's dad's crystal set.

AIR WIRELESS!!

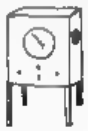
Across the bridge of time from those far off days comes another recollection as I type this article. About this time "Smithy" and Ulm were hitting the headlines from somewhere in mid-Pacific headed for Australia. On this particular day, as I walked home from school along Duke Street Campsie, and passed the home of another schoolmate named Townsend, I could hear loud static and a voice from a radio trying to make itself heard. I was told that the voice was that of "Smithy" himself — probably being rebroadcast by some commercial station. Oh, the wonder of it all for this small boy — to hear a voice from far across the mighty Pacific Ocean. (I remember that for at least one of his flights across the Tasman 'Smithy' made good use of some amateur radio stations who set up their gear on Gerringong beach, south of Sydney and got the very latest pre-flight weather reports from New Zealand amateurs.)

RADIO SHOW

Another highlight of this Age of Wireless comes to me as I write. The Sydney Radio Show held in the Town Hall was widely publicised, and the thousands of school children who had been invited, arrived in droves. We were told that Marconi himself,

'the father of W reless" was to switch on the ights of the Sydney Town Hall by remote control from his yacht in the Mediterranean Sea Another highlight was a Trans-Tasman radio-telephone hookup with New Zealand The Australian Post Off ce was eager to display its new toy, and a silver or nickel coated telephone (it was ,azzed up for us at any rate) in a sort of g lded birdscage-cum-telephone box and was installed against one wall inside the hall, while along the wall was displayed a giant painted mural, representing in graph c form the two thousand miles of ocean between Sydney and Wellington

School ch ldren were invited to enter the gilded telephone box to talk via this two thousand mi es (an awfully long distance in those days) with the operator in Wellington I don t remember going into that box, so I assume I was either too scared or too nervous or both, so I contented myself with istening outside the box via a speaker while other kids spoke with the man in Wellington



RADIO UPDATE

When crysta sets gave way to valve wire esses, wireless shops popped up all around Sydney Even gramophone shops jumped on the bandwaggon and of course a few wireless shops popped up in Campsie I pestered Mum to buy one of these new w reless es, so arrangements were made w th a shop n Beamish Street, Campsie to bring one of these sets to our home "on demo' Now be it known to all and sundry that these were still the Depression days when sa esmen were falling over themselves to get these w reless sets into the homes of the people And so, to have a set 'on demo' for a week or more without depos t in those days was not at all unusual. So eventually there arrived at our house a gawky looking wireless with big ong legs that looked like one of those birds n a paint ng that I know of who spend their eternity suspended by their long legs over a pool ooking for fishes in the water they are standing in The valves in this set always generated a cosy generous glow that on winter nights saved our light bills and kept us warm as well And it was on this set that we cou d listen to "Dad and Dave", 'Martins Corner' "The Cashmere Bouquet Show' or perhaps my best oved whodunit called 'Scott of Scotland Yard" (a George Edwards Epic)

But as we eventually found out, all was not well with that w reless In fact, when motor cars passed our place, that wireless made some very weird no ses. Mum reckoned that there was definitely something wrong with the thing and so with me in tow, she hi-ta led it to the wireless shop But she didn't let on that it was one of *their* sets that she was unhappy about Now Mum's parents came from the Emerald Isle, and when she "got her Irish up" she got hopping mad

She told the man behind the counter that we had a wireless that was making funny noises every so often, and asked what he thought about it. "It's definitely faulty," he replied. "There's something very much wrong with that set madam. You ought to have it fixed." "Well then," said Mum reaching "Boiling Point" very quickly "you had better get your feller come and fetch back that set that you're trying to sell to us because it's no good at all" and flew out of the shop still with me in tow

MANTLE RADIO

Our next wireless (oh yes, we did get another) was a beaut little Mullard (Mickey Mouse mantle, I think) which worked fine and doubtless, if I had it here now, would out-perform many of the solid state sets that are around today (excuse me for showing a bias) It was for broadcast band only, got all Sydney stations without bother, and occasionally even pulled in 2KA Katoomba And as an extra bonus, we could pick up Sydney police radio VKG which came in on a harmonic near 2BL So, with this added bonus, we knew where the action was around Sydney Town

At school, kids including the school's resident Marconi, Ray Anderson, were telling me about these mysterious stations called "shortwave stations" which were ever so far away, and were located so far down the dial that they were outside the range of the broadcast band mantle How to get them was the problem, and here indeed for me was a hitherto-undiscovered world to enter into. I was advised by the school's resident Marconi and other kids that I could make the Mullard mantle pick up these mystery stations by removing some of the wire off those strange looking coils near the tuning capacitor, and this I proceeded (without parent's permission, I guess) to do. In fact I got a better idea — in order to make the coils easier to get at for further experimentation — why not move the coils to the back of the set so that they stuck out backwards? At this time such things as alignment were unknown to me so having thus thoroughly upset the alignment of a beaut little broadcast set, I finally converted it to one that could receive broadcast and shortwave stations intermingled right across the dial And now it could even get (on Sundays only) the experimental station VK2ME Sydney How was I to know then that what I had done was to wreck forever one of the finest mantle sets of its day

However, all this is with the benefit of hindsight It was thus that I had my first introduction to the world of shortwave radio, that world that was to later bring me, among other things, to the voices of Churchill and Hitler, and much, much more, as I will tell of in later articles

Somewhere about 1932 we moved from Campsie to Ryde, and the Empire Broadcasting Service had begun On shortwave I could hear a voice sometimes saying 'this is Daventry calling Here s the news' Yet I still had a soft spot for sets of the crysta variety So hearing that King George the Fifth was to make the first of a whole series of Christmas broadcasts (a tradition that s being followed by today s Royalty) I knocked up a crystal set n Waterv ew St, Ryde just so that I cou d say, as I do now, that I heard King George s voice for the first t me on my crystal set

George the Fifth died about 1935, Edward ascended the throne, H tler started mak ng loud noises like "Sieg Heil" the years rolled on and my radio was then a dual wave Gulbransen I became an avid listener to Vatican Radio. and the bells of St Peters were often heard in our home A novel addition to my listening p easure and one that often startled guests at our home, was when I hooked up an old horn speaker to act as a microphone when the cow was being milked in the shed in our yard and the bellowing of 'Mo ly the cow' could be heard in our front room, via a pickup connection on the Gu bransen

Radio is a fine hobby May it reign forever, and thanks to all of you who have made so many kind comments about the effort I put into this co umn There's plenty more to come even if I do occas onal y miss the deadlines

73s to all
Joe, VK2BJX
AR

EQUIPMENT REVIEW

Coming Soon

Equipment Reviews of —

Mobile One Hamtennae
ICOM IC-R70
Nicholls Woodpecker Blanker
Kenwood TR7950
Kenwood R2000

HOW'S DX

Ken McLachlan VK3AH
PO Box 39, Mooroolbark 3138.

What price a DX country? This is the question that a number of serious thinking amateurs are asking themselves and close friends after the Spratly Island misadventure that occured in April

The Spratly Islands consist of in excess of one hundred small islands and reefs of which thirty three only remain above high water level at all times and these are scattered over an area exceeding 150 000 square kilometres in an area of the South China Sea with China to the north Malaysia to the south Philippines to the east and Vietnam in the west

These islands had little commercial value except for fishing until the mid 1970's when one of the contenders for ownership decided that the area may be a source of oil. Claimant to the area has been made by China who base their case on rights that are said to date back to 200 BC. In 1887 the French government of the time acknowledged Chinese sovereignty over all islands in the South China Sea. In 1933 France occupied nine islands but in 1940 were driven out because of World War II. The Japanese maintained a submarine base in the area during the war

Present claiments to the area in either full or part are China, Vietnam, Malaysia, Taiwan and the Philippines and who owns what seems to be unclear even to the occupiers of the few of the islands, some of which have been occupied since 1945

Four Cologne DX Club members decided to activate this much needed DX country for their fellow amateurs. After much seeking of transport they met up with Peter Marx and his lady Jenny Toh, who had designed and built a catamaran which was Ketch rigged and offered the luxury of four state rooms which were built into the outriggers. The saloon had two metres of head room and was finished in teak. Below deck, the finish was as impeccable. The bulkheads were carpeted to reduce engine noise and the wash basins and toilets worked. Bruce Wilson, a media correspondent from Washington, who with his XYL, had the pleasure of a cruise on this vessel described it as a miracle for such conveniences on a yacht to work.

Peter a German master mariner and Jenny a Singapore Chinese graduate from a Swiss cordon bleau cooking academy, had visions of taking discerning tourists, on charter trips around the South China Sea and itinerate around its myriad of islands. The four DXers chartered Peter and Jenny's vessel Sidharta named after a Hindu goddess

Whilst enroute they were heard at this QTH to say they were within fifty miles of their goal of Camboyna Cay Island in the Spratly group. The group were in excellent spirits and anticipated placing a signal on the air from their goal or a nearby unoccupied island within forty eight hours.

This was not to be, as soon after, a gunboat appeared and fired upon the fifteen metre Sidharta. Their last message heard on the amateur bands was —"We are being fired upon and we are on fire"—. It is understood now that one of the amateurs was killed, and the five survivors were either injured or wounded. The vessel ablaze, they took to the dingy and were still under fire from an unknown assailant.

Extensive air searches were inaugurated by fellow amateurs, with many amateurs participating, but with no sightings they were scaled down after a number of days. Meanwhile Peter somehow guided the dingy towards the shipping lanes and after nine days, four survivors were picked up by the Panama cargo ship "Linden". Another of the amateurs had perished in the dingy.

The survivors were taken to hospital in Hong Kong by Police launch when the vessel reached harbour some forty eight hours later.

With hindsight a number of operators

Jenny Toh and co-owner Peter Marx leave the hospital in Hong Kong after a check up.

Photo Guy Liu courtesy Joe Hilger UPI and the Melbourne Herald

Baldur DJ6SI one of the survivors being assisted aboard the Police launch from the cargo ship Linden at 5:00 AM in the morning.

Photo Carl Ho courtesy Joe Hilger UPI and the Melbourne Herald

must be commended for their diplomacy in not discussing certain aspects of the incident due to the fact that it could jeopardise any diplomatic negotiations that were taking place. Zero marks to those operators who complained of missing out on a new country and a special file in the memory bank of the call signs that were given. This practise disgusted many listening let alone crowding an emergency frequency with idle chatter.

Other incidents this decade which have caused undue hardships to the participants of other expeditions in the Pacific, include a serious aircraft accident that caused undue suffering and hospitalization to a YL operator and the slipping on some glass of a surgeon causing such damage that he was unable to further continue his profession.

No matter how meticulous the planning, it is unlikely that any of the above incidents could have been forseen and averted but one thought is that this and other such happenings are going to be in the minds of DXpeditioners in the future.

Amateurs world wide offer their condolences to the families of those that perished in this unfortunate incident and sympathy is extended to the organisers, the Cologne DX Group who planned the operation and to Peter Marx and Jenny Toh, their ambitions and livelihood shattered.

Perhaps now is the time to take 1S off the DX Countries list before another expedition is launched with maybe more serious consequences to the participants.

EGYPTIAN ACTIVITY

Ezzat SU1ER

A new amateur in SU land for 1983 is Maggi SU1MR. Maggi is the daughter of Ezzat SU1ER who has been licenced since 1976. Of the sixteen amateurs licenced in Egypt, three of them are YL's. Maggi is the youngest, only fifteen years old.

Maggi uses Ezzat's equipment, a Collins KWM2A with a TL922 Linear fed to a three element Yagi twenty metre monobander at twenty five metres. Whip antennas are used

Maggie SU1MR

on other bands through a coupler. Ezzat and Maggi are QRV mostly on Fridays and Saturdays between 1700 to 2100 UTC around the frequencies of 7.080, 14.280, 21.280 and 28.580 MHz. QSL's to PO Box 33, Air Port, Cairo, Egypt.

QRZ DX

Bob W5KNE has taken on the unenviable task of editing QRZ DX, a weekly publication in the United States of America.

A reciprocal agreement has been worked out between the writer of this column and Bob that will allow readers of both magazines greater access to DX news.

LEBANON ACTIVITY

Very little activity out of OD land lately but SSB enthusiasts may look for OD5FB who regularly frequents around 14.220 MHz particularly on Fridays and Saturdays. CW operators are taken care of by the regular appearance of OD5LX around 14.030 MHz.

DIRECT QSL'S ONLY

WA4JQS, QSL Manager for VP8s, QJ, NJ, PU, WA, ZV, ZS1DM, PY5YL and TA2TAT has made it known that he will not answer cards via the bureau and has given his bureau instructions that all cards except those from SWL's and USSR are to be sent for pulping. A self addressed envelope with adequate IRC's is required by him for a confirmation.

Well at least everybody does know where they stand and the readers can make up their own minds as to whether they subscribe.

HF BEACONS

It has been reported that a number of HF beacons on 18.110 and 24.900 MHz are cropping up from North America. Callsigns known to being used are KK2XJM, KM2XDU, KM2XDW and KM2XKO with voice indents.

AN AMATEUR FIRST

Probably not DX news as such but the readers of this column would think it remiss of me if I did not mention a little of the history of one of the few VK and the only VK YL representative on the ARRL DXCC Honour Roll. I gleaned this information by reading a recent edition of the Radio Amateur Old Timers Club newsletter which brought to light an interesting fact about one of VK's keenest DXers and a constant contributor to this column, Austine VK3YL.

Bob VK3ML, the group's Publicity Officer mentions one of the firsts in the history of the hobby in Australia. To quote in Bob's own words —"There is one positive and unique "First" when our Austine Henry (nee Marshall) VK3YL was enrolled in the Royal Australian Air Force on 6 September 1933. She was granted the rank of AC2 with a service number of R20. She was recognised by the RAAF in a letter from the Department of Defence dated 21 May 1980 as being the first woman to enlist in the RAAF. We congratulate Austine in having this rare distinction."—.

Austine, is noted world wide for her prowess with the key since she was licenced in 1930 and over recent years Austine has combined SSB into her operating skills and is a much sought after contact from all continents when time permits her to be on air.

STATISTICS

Hugh VK6FS has extracted a few figures out of the logs of VK0HI and VK0CW which highlight the operating habits of VK amateurs. The breakdown of the twenty metre log of VK0HI indicates that the total calls appearing in the DX log to VK were 737 made up of VK1-22, VK2-113, VK3-205, VK4-55, VK6-166, VK7-37, VK8-8, VK9/MM-1, VK0-3, VK0/MM-1. The seperate individual calls not counting multiples amounted to 581. One VK3 amateur appeared seven times, another four and twenty nine had two QSO's, two VK2's appeared four times and five three times with fourteen appearing twice and on the story goes call area by call area.

Hugh validly points out that due to duplication such as this, 156 amateurs missed out on a QSO with the rarest place in the world. A break down of the ZL participation shows that of 79 calls worked seven were duplicated and two were triplicated in the log. No further comment is necessary!

MALPELO ISLAND

A note from HK3DDD remarks that he will be QRV from Malpelo in October. The call will be HK0TU. This will be one to look out for and QSL's will be taken care of by HK3DDD, Call Book QTH.

BHUTAN

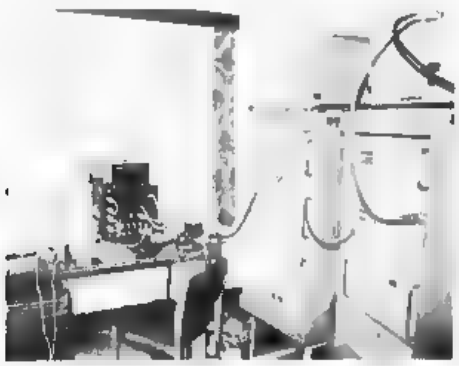
Correspondence from Pradhan A51PN indicates that he is no longer on the bands due to equipment problems. Pradhan does not indicate what equipment he used or what the fault is but meantime A51 is climbing the rungs of the much wanted ladder in many operators logs.

CONGO REPUBLIC

Jorg TN8AJ may be QRT from this country for good In a letter to Ron ZL1AMM he indicated that on a trip there last November and December he only had a transceiver available that would operate up to 12 5 MHz with a power output of 100 watts and as it was the rainy season the QRN levels were very high Jorg did succeed however in some regular QSO's with JA

The latter part of his stay allowed use of the one kilowatt transmitter, however conditions were bad and at times difficulties were experienced in having a QSO with his QSL manager Y25LO

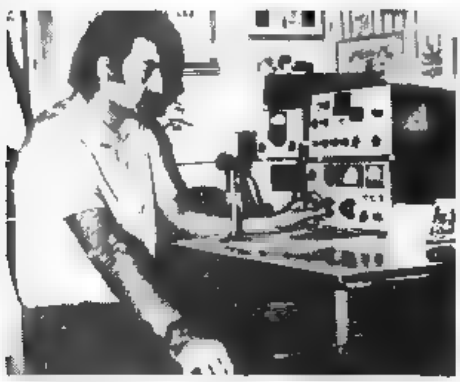
To summarise the six operations from the Congo between 1979 and 1982, there have been 13,203 QSO's, 211 countries worked of which 176 have been confirmed Broken down into bands they are 80 metres — 52 countries, 40 metres — 80, 20 metres — 147, 15 metres — 170 and 10 metres —139 countries confirmed Worked all States (WAS) was achieved on fifteen metres SSB



Jorg's equipment from left to right. Receiver EKV15, transceiver 100 W type SEG 100 (above RTTY receiving set F1200) — 1 KW transmitter KN1. All equipment is manufactured in the German Democratic Republic.

HOMEBREW

Two very keen and well known DXer's from the USSR are Vlad UW6FZ and his brother Larry UA6HZ These amateurs share the same home brew equipment and antennae Both operators are very keen contesters Who operates may be the toss of a coin!



Vlad UW6FZ operating the home brew station.

WILLIS ISLAND

The new operator for Willis Island is Graeme VK9ZS. Graeme will be active from the island from this month through to the next scheduled changeover in December

QSL arrangements will be through Jill VK6YL QTHR.

Graeme will be taking six metre equipment with him, which was donated to the Commonwealth Bureau of Meteorology for the use of amateurs stationed at the remote Bureau base, by the Heard Island expedition and the VK6 DX Chasers Club.

Three Willis Island amateurs get together on Willis with MV Cape Pillar in background. L to R: Andy VK9ZA who did the last Willis tour, Bryan who has done many tours on Willis and John VK9ZJ currently on Willis.

MT ATHOS

Gus W6LAS/SV-A was active from this rare area and according to all reports many VK's were successful with a new country. Gus was making a habit of calling in on Stan G3MHM's ARS Net on 14.244 MHz

FREQUENCY SHIFT

North American stations were all set up to QSY lower in frequency around the 20th of May and were awaiting the blessing of the FCC.

The General licence holder will be permitted 14.225 MHz and above, the Advanced 14.175 MHz and above and the Extra Licence holder an extra 50 kHz, 14.150 MHz and above.

The QSYing of those regular scheds that many VK's have with Europe and VE just under 14.200 MHz are going to crowd the low phone end of twenty metres. Perhaps I might be forced into CW operation after all. The DXpeditioners frequency of 14.195 MHz may now become 14.145 MHz.

This will be the first of many changes which will effect the American privileges in all amateur bands.

ADELIE LAND

Anyone working Dumont FB8YK can expect a quick QSL return Dumont's XYL is handling the paperwork for him whilst he is down south Her address is Madame D'Uraville, 24 Manresa Court, Sandy Bay 7005, Hobart, Tasmania

Dumont, with a very powerful signal is generally heard around 14.200 MHz.

RECOGNITION

Dave VK3DHF, probably better known as VK9ZD and later as VK0HI received quite a surprise when he called in at the 47th Annual WIA Convention held over the ANZAC weekend

Dave VK3DHF responding to the presentation

Dave was presented with a framed certificate inscribed — "For outstanding service to amateur radio" from Bruce VK6OO President of the VK6 Division of the Institute

Congratulations Dave, and thanks for the new countries that you have given many, on behalf of all DXers.

AFRICA

Ten metres is not "dead" though it may be "dying". Stations from Africa have been romping through in the late afternoons in the eastern states. So if you want 5X5 s and all the other rare ones don't overlook a quick CQ on ten metres.

LATE NEWS

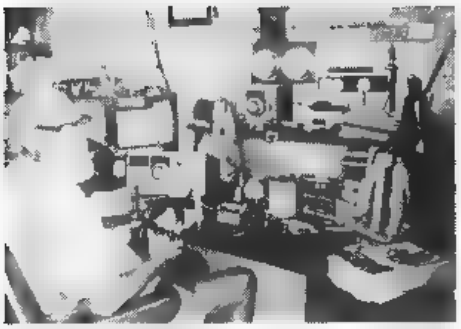
At the time of going to press 1S1CK was active from the Danger Reef in the Spratly Islands

Congratulations must go to these very venturesome gentlemen that have made a new country possible for so many in the light of what has happened in this area earlier this year QSLs to DU1CK

Voice of the Mediterranean

Much heard on the HF bands is Eric 9H4G I first worked Eric in 1973 and at that time Gozo was a new country for me The QSL was returned to me very promptly

Eric retired from business in London in 1969 and he and his XYL Frances decided the idealistic area of Goza Island was an ideal place to settle Now was the time to enjoy amateur radio, a hobby that has a lot to offer, which had been Eric's interest since the nineteen twenties when he joined the RSGB as a SWL member and was allocated the low number of BRS-104 Eric was first licenced in 1950 with the callsign



ERIC 9H4G

G3HGX but due to business pressures the bands unfortunate y saw very little of Eric

In 1972 Er c, the fifth amateur on Gozo, was a located the callsign 9H1DG but in August that year, stations on Gozo were given cal signs running from 9H4A to 9H4Q Now there are s xteen amateurs on the island, all members of the Gozo Amateur Radio Society of which Eric is Vice Chairman It is of interest that only two stations, G3DOG and G4GGY, have worked a l the sixteen amateurs in this area

DX ng is Eric s favourite pursuit, with a DXCC score of 316, 255 of these are on ten, 288 on fifteen and 308 on twenty metres and the new interest of forty metres over the last three months has netted some eighty three countries from all continents The total of 303 current countries leaves Eric knocking on the bottom rung of the ARRL DXCC Honour Roll. Eric's equipment comprises a Kenwood-Trio TS515 with remote VFO into dipoles for the three HF bands and a s oper for forty metres which are located at the QTH in the village of Zebbug, 425 feet above sea level Zebbug is the highest v llage on Gozo Island

Other radio nterests of this friendly gentleman includes award hunting, having some one hundred and fifty to his credit, being manager of the 9H4 QSL Bureau and promulgating the very attractive "Worked Al Gozo Award where VK stations have to work f ve different Gozo Island stations to qua fy

Liv ng on this paradise island has an extremely interesting 'spin off' according to Eric and Frances and this is the number of overseas visitors that personally call to meet the couple. Over the years amateurs from countries such as DL, G, GI GW, PA0, SM and VK have enjoyed their hospitality and readers of this column have an open invitation to join Eric and Frances over a cup of tea if they visit Gozo

QTH'S YOU MAY NEED

3B8FL	PO Box 1104, Port Louis Mauritius.
3V8PS	PO Box 473 Tun s, Tunisia
5N8AFE	PO Box 12635, Kano
6C35A	PO Box 35. Damascus
6C35M	PO Box 35 Damascus
6C35N	PO Box 35 Damascus
6C35O	PO Box 35 Damascus
6W8EX	PO BOX 35 Ziguinchor
9J2CV	PO Box 70992 Ndola Zambia.
9J2TJ	PO Box 28, Chisekesi Zambia.
9K2ADN	PO Box 19593, Haitan, Kuwait.
9M2CH	PO Box 777, Kuala Lumpur
A99A	PO Box 22381, Muharra, Bahrein.
AP2M	PO Box 999, Rawalpindi
C21RK	PO Box 139, Nauru
CT2CB	PO Box 44, Santa Maria Is. Azores
EL2BE	PO Box 1011 Monrovia, Liberia.
FB8XAB	8 Rue Messager, Saint Michel, 91240 France.
FH8CQ	PO Box 144 Dzaoudze, Mayotte 97610 France.
FO8HL	PO Box 5872, Pirae, Tahiti.
FO8IV	PO Box 41, Hao Island, French Polynesia.
FP8MX	PO Box 51, 97500, St Pierre & Miquelon
FR0FLO	PO Box 200, Tampon, 97430 France.
HP3FL	PO Box 76, David, Panama.
J28DN	PO Box 1724, Djibouti
J6LF	PO Box 134, Castries
J73AB	PO Box 251, St. Georges, Grenada
JD1BBG	PO Box 2, Ogasawa Is., 10021, Tokyo, Japan.
JW8MY	PO Box 224/10, Longyearbyen, Norway
K4CEB	86 Hickory Grove Dr, Concord, NC 2805 USA
KX6PO	PO Box 915, Majura, Marshall Islands [redacted].
T30DB	PO Box 457, Beito, Tarawa, Kiribati Cent Pacific.
TG9VT	PO Box 115, Guatemala City
TI2DL	PO Box 761, Centra Colon San Jose.
TR8GM	PO Box 3511, Libreville, Gabon
VS5GA	PO Box 1200, Brunei
XT2AW	PO Box 2332, Ouagadougou, Upper Volta, West Africa.
ZD8DA	PO Box 4308, Patrick AFB, Fla 32925, USA.
ZD8MF	PO Box 4308, Patrick AFB, Fla 32925, USA
TI5FP	PO Box 125, Grecia, Costa Rica.
Z21GJ	PO Box 66021, Kopje

CW SWLing with Eric L30042

28 MHz
DU7EAL/3, JA1NAE. JD1CLZ. JH4UVU JA0OIK KH6SP KA8LEX/KH6. RA9OUF W6FEX. W7LEI. XE3UT. YC2BOJ

21 MHz
0K1EK. OU1CK G4RCG HB9CGB. HL1CG, HL0BAC. JA8MZ KC7BM/KH2 OH1OU OZ3IZ P29BR. PA3AWW PA0TAU UK9MYL UB5EC VE7AGM. AB7P YC3BRI YU4WE/X ZK1WL. ZL1AMO/C. 9Y4SL

14 MHz
A35MS. CO1OF CR1CBU CT2ON N0ZO/OU2 EA9KQ. FO8FW HH2VP HL9WC. KP2G. LU9CV ON5UM/LX. T30CH UJ8SAO. N6YK/V2A VP9HW YB0AFA. YV4AU. ZL1AMO/C. 6Y5SG.

10 MHz
A35MS. DJ4DA. EA2AFM F6EPO FC9VN. G3AAE. JA6NW KH6SP KV4CI LA8FK VE3BDO 5N7HKR (0615Z)

7 MHz
WA3UHK/OU2 FG7AM. FO8BI GU5BLG. HH2VP HL5BBM IOUXY KC6SZ. LZ2UG. YO3ACX. UK2BBB. UK5ICX. VU2TTC. XE1JTR. YV1AD YU2CBM. ZL1AMO/C.

3 5 MHz
JA6VU. UK5KAO. UB5UGO VE1ZZ. 5Z4MX

HEARD AND WORKED IN EASTERN STATES

28 MHz
DK8VD 0Z1FTE WH2ADG (Gaumi

21 MHz
5Z4CM (Charlotte). 9J2BO FB8ZO. SM2EKM. T30AY UP2BBX. UR2OO. XE1MR. Z21AO. ZS6CR

14 MHz
3A3LF 3B8FL 3D2RR. 3D6BP 3V8PS. 4K1G* (OSL/UA0UCJ) 4S7EA 4S7NB 4S7TZG 4S7VW 4T3S 4J1 O 4Y9YU (QSL YU4FRS) 5B4HF 5H3FN 5H3YL. 5T5AP 5Z4DA 6Y5HN* 6Y5IC (Wendy) 8J5SLN 8O7AZ 8O7RG. 9H1EU 9H1GY 9H4F 9K2CX 9M6VW A35.. A4XJV A92P AH9AA. C21NI C21RK CN8CD CN8CX CN8CY CN8ES CN8EJ CO2OO COBOC* CR9FE CR9T* (QSL WA4IKZ CR9WW CT2CR CX5BT DF3NZ. ST2 DJ5RT. TT8 EA6NB EA7DUV EA8AHB EA8BF* EK9C.O F6FIC/T2 FB8XAB FB8YK FG7CG FG7GT FM7CD (OSL/F5VUI) FO8FO* FO8HL FO8IV* FR0FLO FY7AN G35HA GB4DX GJ5EOO H44SA HA2KMR* HA5AK* HA5KKN* HB0CBJ HC2RG HG6V HH4WW HH5CB (OSL K9WGJ) HK1ANP* HK1ESK HL1CG* HR1BM HZ1AB HZ1AB T9KZW T9SEU* Z9A J28DM J37AB J37AH J39CM J88AO JY8KG (Irish) K4 CA,YL> KC6IN KH6JKX KH7AA KL7OO* KX6PO LU5LBO LZ2ZZ OD5SM. OE5KE* OH5NO OK1AUN* PJ2MN PJ9AA PJ9EE PP8ABv PY0SA PY1EFM PY0T PY2PE (Eva) PY7ZZ S2BTF SM2EKM. SP3PLv SV1OL SV1PL SV2RM T2GSH T30AC T30AT T30CH Vick T30CJ T30DB T30TB TG9UI TI7CLE TO5Rv TO6DZ.. (OSL F6DZU) TR8JD UF6FE UF6FFU* UK0YAA* UK8XBD V2A1 V2A0 VK0FY Mob e VK0ST VK0VK VK2BRO VK9 VK9Z.. V02CP VP2H VP2MGD VP2MKY VP2MN (Mae) VP2MO VP2MR VP5KMX VP9TAD* VO9C VR6TC VS5GA VS5GH VU2JNA VU2NR VU2VZ* W5RK 1P1 XE1NKP XFOMDX Y23U.. Y57WG YB0AFA* YB3BD(unda) YI1BGD YO2BEH YO6EX* YO8CF* YU2OH ZK1CG ZK2RS ZL1AMO.C ZL3PA C ZS2OM ZY5EG

10 MHz
VK2A0 VK2BRG VK4NW ZL1BTB ZL2BFL

7 MHz
K2SHL* KX6PO VE3HOS* W5RKY*

3 5 MHz
C21RK KX6PO

* Denotes CW Operation
() Denotes QSL route

QSLs RECEIVED

3D2DX, 4Z4JS 5H3BH, 5W1DQ, C21NI DL2RAY* DL5YBU*, EI4EN FK0AN FK0VL* FK8DK G4HNF* HA5BKV KB2FS* KG6JDX P29BR P29NDX PA0TO* T30CB T3AZ, VK9XM, VK9YM, VP2MED, VS5DX WA2EC * WH2ADG, XE1EFT, YJ8MP

* Denotes 10 metre contacts

CW in VK6

3 5 — GU5BLG (DL4FF) 3.5 — ZL1AMO/C 7 — 6Y5AG 7 — FO8BI 7 — H5AFU 7 — KC6SZ 7 — TR8JD F6AJA) 7 — YN1BO (5K7HW) 7 — ZL1AMO/C 14 — BV2A 14 — K0TT KH0. 14 — K1BJ/389 14 — LA0KG. 14 — LA0QE. 14 — LA0QFU 14 — UJ8JLB. 14 — ZL1AMO/C 21 — 9H3TM 21 — FB8ZO 21 — K1BJ/389 21 — ZL1AMO/C

THANKS

Assistance with information for these notes has been forthcoming from amateurs including VKs 1MM 2PS, 3BY, FR, UX, YJ YL, AXQ, 4FB AGW, 6FS. HD, IT NE and Eric L30042 Overseas amateurs who assisted included G3NBC ON7WW, ZL1AMN ZL1AMM and 9H4G Research from magazines including HOW'S DX, DX NEWSLETTER, QRZ DX and Jan and Jay O'Brien's QSL Managers List The closing date for information for the August issue is 23 June Thanks to all contributors

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GFS electronic imports

JIL REG'D TM

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NEW RANGE OF ACCESSORIES See over.

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THE ONLY SCANNER THAT GOES 26-88, 108-180 & 380-514 MHz

SPECIFICATIONS

■ Type:	FM & AM		
■ Frequency Range:	a) 26-57 995 MHz	Space	5 kHz
	b) 58-88 MHz	Space	12.5 kHz
	c) 108 180 MHz	Space	5 kHz
	d) 380-514 MHz	Space	12.5 kHz
■ Sensitivity:	FM a) 26-180 MHz	0.4uV	S/N 12 dB
	b) 380 514 MHz	1 0uV	S/N 12 dB
	AM a) 26 180 MHZ	1 0uV	S/N 12 dB
	b) 380-514 MHz	2 0uV	S/N 12 dB
■ Selectivity:	FM.	More than 60 dB at —25 kHz	
	AM	More than 60 dB at —10 kHz	
■ Dimensions:	210 (W) x 75 (H) x 235 (D) mm		
	8-1/4 (W) x 3 1/4 (H) x 9-1/8 (D) in.		
■ Weight:	2.8 Kgs		
■ Clock Error:	Within 10 sec. /month		
■ Memory Channel:	16 Channels		
■ Scan Rate	Fast	8 Channels/sec	
	Slow	4 Channels/sec	
■ Seek Rate	Fast	10 Channels/sec	
	Slow	5 Channels/sec	
■ Scan Delay:	0, 3 or 4 seconds		
■ Audio Output	2 Watts		
■ Ant Impedance	50-75 ohms		
	Whip or External Antenna with LO/DX Control (20 dB ATT)		
■ Freq Stability	26-180 MHz	Within 300 Hz	
	380-514 MHz	Within 1 KHz	

The JIL SX-200 represents the latest **STATE-OF-THE-ART** technology in the development of Scanning Monitor Receivers. It has many features that previous have not been available on receivers of its type

For example the tremendous frequency coverage which encompasses all of the following bands.— **HF & UHF CB, 27 & 155MHz MARINE, Australian LOW BAND, AIRCRAFT band, VHF SATELLITE band, 10Mx, 6Mx, 2Mx** and **70CMx AMATEUR, VHF HIGH BAND** and **UHF TWO-WAY band** — as well as many others. Other features include detection of **AM** or **FM** on all bands Squelch Circuitry that can be used to **LOCK OUT** carrier only signals Fine Tuning control for off channel stations, **240 VAC** plus **12VDC** operation, Squelch Operated Output that may be used to trigger a tape recorder or channel occupancy counter and accurate Quartz Clock

$599

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JIL SX-200 A BETTER SCANNING MONITOR RECEIVER

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MECHANICALLY RUGGED

The JIL SX-200 is ruggedly built using EPOXY-GLASS printed circuit board and double sided through hole plating techniques. Easy access and servicability is maintained throughout its design.

4 BIT MICROPROCESSOR WITH ONBOARD ROM AND RAM

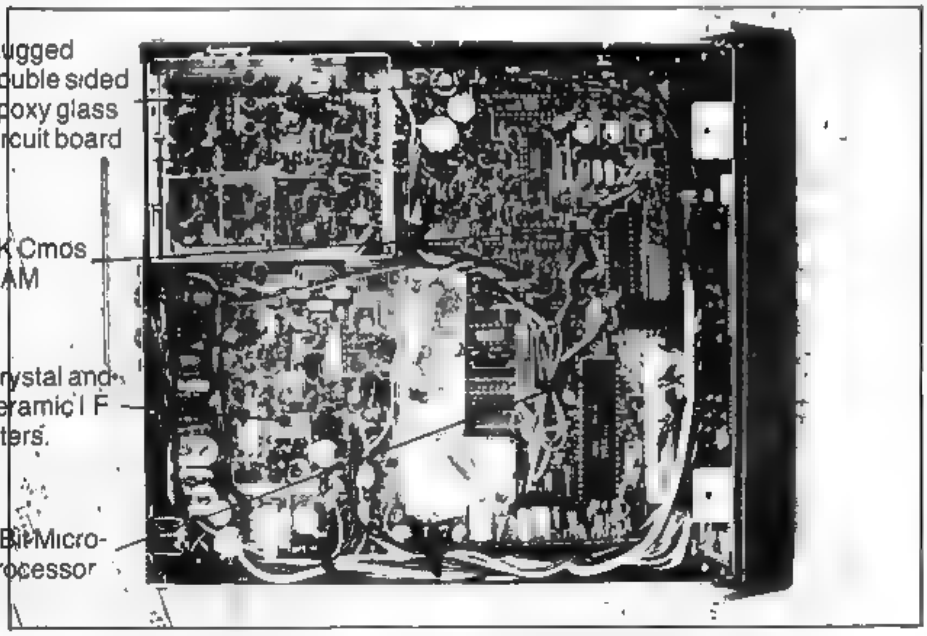
A powerful 4 Bit PMOS Microprocessor, the uPD553, is used as a controller in the SX-200. Its features include 2000 x 8 ROM and 96 x 4 RAM onboard as well as up to 80 instructions with a 3 level subroutine stack

EXTREMELY LOW SPURIOUS COUNT

Even though the SX-200 covers over 33,000 Channels JIL, through careful design, have been able to reduce the number of internally generated spurious signals to an extremely low level. Not the case in most other scanning receivers.

FULLY TRACKED RF AMPLIFIERS

The SX-200 makes use of 3 separate RF Amplifier Stages. They are divided into 6 bands, each band having its own electronically switched coils which are fully tracked with the receiver frequency using Varicap Diodes. Maximum performance is thus gained over the entire operating range of the set.



SX-200, RUGGED CONSTRUCTION AND EASY SERVICABILITY.

NEW ACCESSORIES

■ EXP-32 KIT
Increase the memories of your SX-200 to 32 with this memory expander kit
$53 + $2 P&P

■ A4-AM KIT
Provides automatic AM operation on the 27 MHz CB MARINE and AIRCRAFT bands
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■ CVR-1B CONVERTER
allows your SX-200 to cover 160 to 360 MHz (Incl SPACE SHUTTLE frequencies)
$199 + $5 P&P

■ CVR-2 CONVERTER
allows your SX-200 to cover the SHORT WAVE bands 0 55 to 30 MHz
$189 + $5 P&P

■ MFJ-332 VLF CONVERTER
allows your SX-200 to cover 5 KHz to 1600 HKz
$144 + $5 P&P

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W.A.: Letco Trading Co. (09) 387 4966, N.S.W.: Emtronics (02) 211 0531, QLD: CW Electronics (07) 397 0808, S.A.: Jensen Intersound (08) 269 4744, Plus many other regional outlets, contact GFS for your nearest stockist.

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AWARDS

Mike Bazley VK6HD
FEDERAL AWARDS MANAGER
8 James Road, Kalamunda WA 6076

As can be seen, with forty nine awards issued and thirty six DXCC amendments during the past three months, yours truly has been kept quite busy. Once again, if I may remind those who are writing in, a stamped addressed envelope cuts down my work load. Cannot afford twenty seven cents? Well even a self addressed envelope helps a lot.

Every six months this column lists all those stations who have a claimed DXCC score of over 275. A look at the March awards column should convince the majority that there seems to be a large number of calls over this magic figure. I personally believe that this total should not change particularly if it has been the goal of a number of members over the years. The alternative is to delete from the listings any person who has not amended their totals over the past two years. If you are in this latter category and wish to remain in the listings, please drop me a line. The next DXCC top listings are due to be published in September AR. My deadline for this issue is mid July.

AWARDS

Awards issued and amendments made during period 5 January 1983 to 22 April 1983, are listed below.

WAVKCA AWARD

CALLSIGN	CERT NO		
VE2DPJ	1109	PA3AZF	1127
JA1NAQ	1110	JF1PHJ	1128
JA4VZX/3	1111	JJ1VRO	1129
G4GED	1112	WD5HEG	1130
W7HZL	1113	VK6PY	1131
JA1OMS	1114	VK5GZ	1132
JA8UFO	1115	JA6VNR	1133
K8IAI	1116	JR7OEF	1134
JE2GAL	1117	JH5HCP	1135
JA8CRE	1118	JH1NPX	1136
OK1AVE	1119	ZP5CF	1137
VK3KHI	1120	G3BRD	1138
ZL2BHS	1121	I0SGF	1139
JG3NVJ	1122	UA2FBZ	1140
JA1TD	1123	UC2AFE	1141
JA1DNQ	1124	UA0LL	1142
Y46XF	1125	UB5UCH	1143
ZS2SI	1126	UK9OAZ	1144
		UA9ODK	1145

HAVKCA AWARD

UA9-145-197	67

VHFCC AWARD

VK6OX	115

WAS (VHF) AWARD

VK6OX	153

DXCC NEW MEMBERS

PHONE

CALLSIGN	CERT NO	TALLY
VK5ARO	310	100
VK2DDD	311	103
VK2DVU	312	100
VK2PBK	313	125
VK3DMR	314	100
VK2AKP	315	250/252

OPEN

VK3DAN	215	100
VK5AOK	216	100
VK3PU	217	105
VK3AHK	218	101/106

DXCC AMENDMENTS

PHONE

CALLSIGN	TALLY		
VK2FD	211/212	VK5MS	314/361
VK2PY	188	VK6AJW	270/272
VK2VBL	194	VK6FS	293/297
VK3BLN	279/283	VK6HD	306/317
VK3DFD	275/276	VK6NE	299/309
VK3NLS	157/159	VK7BC	282/287
VK3OT	294/298	VK7LZ	307/327
VK4RF	303/316	VK9NYG	153

CW

VK3BLN	174/176	VK6HD	273/286
VK3YD	289/324	VK6RU	261/303
VK4RF	281/305	VK7BC	151/156
VK5ARA	131	VK7LZ	271/304

OPEN

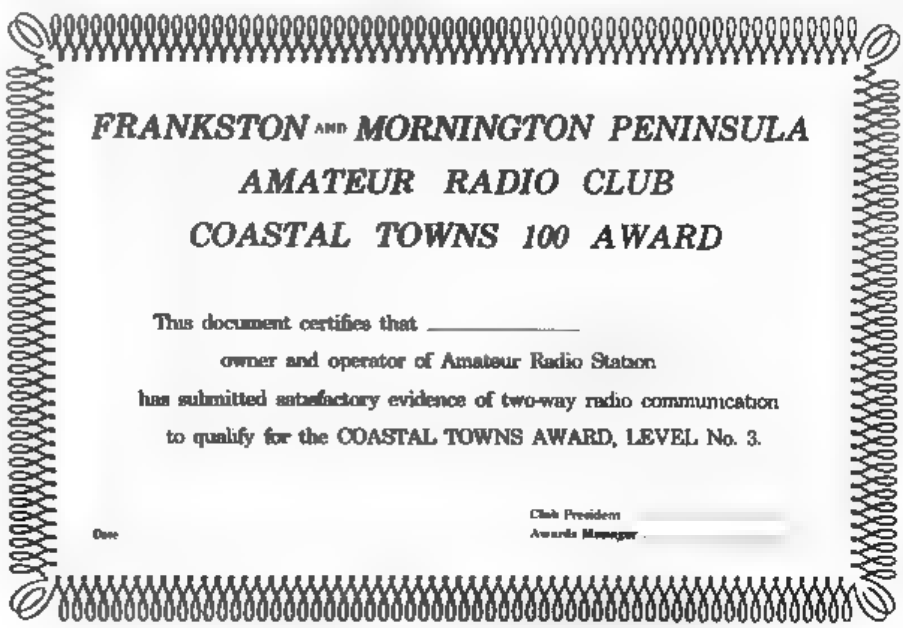
VK2QL	308/351	VK5ARA	223/224
VK3AXQ	155/160	VK5GZ	117
VK3BLN	283/287	VK6FS	294/298
VK3NLS	171/173	VK6HD	311/329
VK3OT	297/301	VK7BC	298/305
VK4RF	309/336	VK7LZ	309/344

THE FRANKSTON AND MORNINGTON PENINSULA AWARD

FAMPARC introduces a new world wide award which is divided into three levels. The basic award, level 3, will be named "The Coastal Towns 100 Award". Please note that it is not 100 coastal towns. The number 100 qualifies the amateurs worked or heard around the Australian Coastline.

GENERAL

1) *The award is available to all licenced amateurs world wide. It is also available to SWLs on a heard basis.*
2) *Contacts after 1st January 1980 are valid.*
3) *GCR rules apply ie all log extracts must be certified by two licenced amateurs, an AR club official or a Notary Public.*
4) *Stations from net operations are not*



acceptable

5) *Level 3 is the basic award and must be worked before levels 2 and 1*
6) *A spot check for each award will be made*
7) *All modes and all HF bands may be worked*

SPECIFICS FOR LEVEL 3

a) *There is no distinction between towns or capital cities – so long as the town/city/suburb is on the coast or river estuary, it qualifies for the award.*
b) *A minimum of five coastal towns/cities from each of VK2, VK3, VK4, VK5 and VK7 with at least three coastal towns/cities from VK6 and three separate contacts from Darwin (VK8).*
c) *A minimum of ten separate contacts from VK2 to VK7 inclusive must be made.*
d) *To qualify for the basic award one only contact must be made with Frankston (VK3).*

LEVEL 2 — SEAL — PORT PHILLIP BAY AWARD

1) *The award is available to all licenced amateurs world wide. It is also available to SWLs.*
2) *Fifty contacts from towns around the perimeter of Port Phillip Bay must be made on two only of the HF bands with a minimum of five contacts on each band.*
3) *A station may be worked twice, once on each band.*
4) *Six of the following towns must be represented: Frankston, Mornington, Rosebud, Chelsea, Rye, Carrum, Sorrento, Mordialloc, Seaford, Altona, Port Arlington, Williamstown, Geelong, Queenscliff.*

LEVEL 1 — SEAL — CAPE SCHANCK AWARD

1) *The award is available to all licenced amateurs world wide. It is also available to SWLs.*
2) *All HF bands and modes.*
3) *Fifty contacts with amateur stations on the Mornington Peninsula must be made by VK, ZL, and P29.*
4) *DX countries require twenty contacts.*
5) *A station may be worked twice on different bands*
6) *There must be at least three contacts with FAMPARC members.*

Log extracts must contain Date, UTC, Station, Signal reports, QTH, Band and Mode and must clearly show the name, callsign and QTH of applicant.

Basic Award Level 3 fee is $3 US or Australian For successive awards $1 US or Australian plus a SAE with three IRCs

For overseas countries lists of coastal towns may be obtained from the Awards Manager of receipt of a SAE and three IRCs. For VK SASE only.

The Award is of average size and printed in black on a bright yellow background.

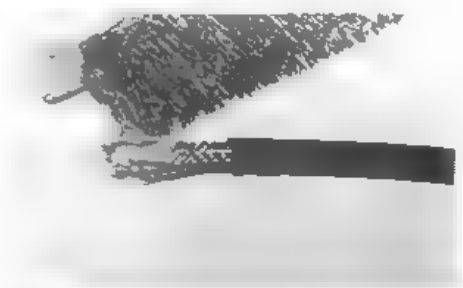
All applications with log extracts to be forwarded to — PO Box 38, Frankston 3199, Victoria, Australia.

AR

TRY THIS with the Technical Editors

COAXIAL CABLE BRAID PREPARATION

Most coaxial cable terminations require the braid to be straightened out. Whilst it is possible to do this strand by strand, there is an easier way.



The wire strands may be brushed out very neatly with a wire brush. This is analagous to brushing hair

Use the wire brush to straighten out the strands a little at a time, rotating the cable as you do this, brushing right around the circumference. The brush strokes should be in line with the cable

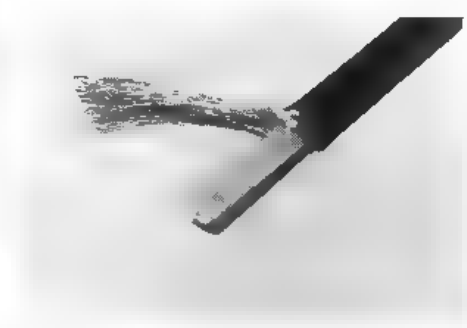
Remember to advance slowly so as not to stress the wire strands of the braid unduly. You will soon have the braid fanned out or brushed out just as you see it in all the diagrams showing how to fit coaxial connectors.

This technique is also useful for other terminations where braid and inner conductor must be separated out

Just a little practice and care will give a professional looking result that anyone would be proud of. Just the trick for PL259s, Type N, BNC and any other coaxial cable termination

The accompanying photos illustrate and explain the technique.

AR



HERE'S RTTY!

Bruce Hannaford VK5XI
57 Haydown Road Elizabeth Grove, SA 5112

THE MECHANICAL RECEPTION OF RTTY

As explained in earlier articles when teleprinter machines, normally used on land lines, are used for radio reception the audio tones coming from the radio receiver must first be converted to pulses of direct current. The audio from the receiver is fed to a demodulator that converts the audio tones into on/off switching. The demodulator switching circuit is connected to the teleprinter through a DC power supply called a loop supply the switching circuit, the Power supply and the teleprinter all being connected in series. By this arrangement the on/off switching in the demodulator will produce DC pulses through the teleprinter machine. As the incoming DC pulsed signal has very little energy in it, this fraction of a watt is only useful to trigger into action mechanical energy available from the machine s electric motor. Just as it only requires minute energy to pull the trigger of a rifle and then tremendous power is released, so the small incoming signal can trigger large amounts of mechanical power available from the machine's electric motor. As there are many makes of machines, all using somewhat different systems, the following description is of a simple hypothetical machine that serves to illustrate elementary principals.

The heart of the mechanical teleprinter receiving machine is a selector electromagnet with its armature. This selector is rather like a large relay, when sufficient current flows through its coils the armature is closed and at other times it is opened by a spring. The armature does not work electrical contacts as in a relay instead it has projections on it that are used to trigger various mechanical actions. To function properly the armature must faithfully follow the incoming pulsed signals. The armature must be closed for mark and open for space (mark is current flow and space no current flowing).

This armature is used to control the starting and stopping of a one turn clutch connected to a receiving shaft and also controls the positioning of five code bars into either mark or space positions as the shaft turns. Firstly let us consider the one turn clutch. When the receiving machine is at rest with no signal being received a continuous mark current is flowing. When an incoming character signal is received such as a letter or figure this mark current is interrupted according to the teletype code. The first Part (or bit in computer jargon) of any such signal is always a space so with no current flowing the armature is released and this triggers the one turn clutch into engaging and the receiving shaft starts to turn.

Once this turning commences it will continue for one turn regardless of any further signals or the absence of them as it turns. Coming to the end of it's revolution normally a mark stop signal is received and the receiving shaft will then come to rest. The shaft will remain at rest until the next space signal is received. If the person at the distant transmitting station is typing very slowly the receiving shaft will be at rest for a considerable time between each letter typed. If the typing is at the machines maximum speed there will be only an extremely short rest between letters. This short rest period at the end of the reception of each character signal is necessary to achieve perfect synchronisation as it is not possible to have sending and receiving machines adjusted to one exact speed at all times.

The receiving shaft is geared slightly faster than the sending shaft in a combined send receive machine. As receiving shafts are slightly faster than sending shafts they finish their one turn a little earlier and will then stop and wait a brief moment until the sending shaft catches up with them. In other words these short waiting periods ensure that the receiving shaft always starts at the same exact time that the sending shaft sends the space starting signal and slightly inaccurate speed settings will not become a major problem. So we see that the starting and stopping of the receiving shaft is controlled by the armature of the selector and this in turn is controlled by the distant sending machine.

Now let us deal with the second function of the armature as it controls the positioning of the five code bars. The positioning of these bars determining what letters, figures etc are to be printed or what machine functions are to take place. It will be helpful to think of the one turn receiving shaft as a sort of mechanical rotary switch with seven segments. As the shaft rotates each segment in turn is exposed to the controlling action of the armature and the armature position is used to trigger various mechanical actions. The first of the seven segments is traversed as the starting pulse is received. The next segment is the first of five code segments that determine what is to be printed etc. As each code segment is reached in turn, the position of the armature at that time determines what triggering signal is given to the code bar associated with that segment.

A mark signal moves the bar into a mark position and a space signal moves it into a space position. At the end of the revolution some bars will normally be set to mark and some to space according to the signal received and these positionings have been controlled by the incoming signal from the distant sending station. In computer language a serial code signal has been converted into a parallel code positioning of code bars. As the code bars control what is to be printed etc let's study them more closely. In their simplest form the bars are parallel to each other and close together, they run from left to right across the machine as viewed from the operator's position. As they are positioned to mark or space they slide slightly to either the left or right so for almost all character signals some will be to the left and some to the right.

These bars have slots in the top of them and above the bars and resting on them are printing control levers. These levers are at right angles to the code bars and so run towards or away from the operator's position. Each printing lever controls the printing of a particular letter etc and they are arranged in an evenly spaced row along the top of the code bars from left to right. For simplicity I have called all these "printing levers' but a few of them don't print anything but instead control some machine function such as carriage return or line feed.

The slots in the top of the code bars are so arranged that for each of the thirty-two possible coded combinations of the five bars the slots will only line up at one point under one printing lever. When this happens this particular lever will drop into the five slots and adopt a lower position than all the other printing levers. Underneath each printing lever is a projection that will be struck by a printing bail that sweeps past under the printing levers once for each revolution of the receiving shaft. The Printing bail will strike only one lever as the others have not dropped down into it's path. When the printing bail strikes the printing lever this letter, figure etc is printed. This printing action commences at the end of the revolution of the receiving shaft. In the case of the levers that don't print anything, when the printing bail strikes them their movement controls some machine function such as carriage return where the machine will then start printing a new line in the left of the page.

In the foregoing for simplicity sake I have left out the fact that in typical machines only a small portion of each signal pulse or bit is used in the receiving of character

signals Most machines have a control called a range finder that controls what part of each pulse or bit is used and this is very handy when signals are distorted in some way So if the first part of the s gnal pulse is distorted you can sample a later part or if the last part is distorted you use the earlier part Usua ly the sample is taken near the middle part which normally gives best results An additional use of the range finder s that to some extent it can be used to get better copy of signals that are slightly off speed

Well, in this very elementary description I have left out many important details, however I trust those who previously had no idea of how things worked will now at least be able to picture with some accuracy what takes place in a typical machine

RE THE 1983 RD CONTEST

As I mentioned last month I am endeavour ng to encourage RTTY participation in this contest and have been busy writ ng many letters for this purpose. How about letting your state RTTY club know that you intend to use RTTY in the contest or let me know direct. I am trying to compile a list of those who intend to participate us ng RTTY

On a personal note I now have a large World War 2 transmitter that I have slightly modified for RTTY and intend to use in the 1983 RD Contest. So if you would like to work an ex WW2 Army Signaller on RTTY using a WW2 transmitter look for VK5XI

73 to all from Bruce VK5XI .....

AR

OLD TIMERS MEET AGAIN

Photograph by Peter Brown VK4PB

The VK4 Old Timers met again at Coorparoo in February. L to R: Jim McDermott, Ralph Pepper, Perc Wood, Arthur Walz, Fred Matthews, Alf Bauer, Steve Fitiell, Norm Odgers and Jack Wooster.

1983

1983 World Communications Year

WCY CELEBRATIONS IN VK4

Australia Post is celebrating World Communications Year 1983 by inviting former employees and others with Morse code experience to test their skills in a special competition to be held in the Brisbane GPO Museum during June.

Testing will be held with finalists competing for awards which will be made to the most proficient sender, receiver and all-rounder

A special function has been arranged for the presentation of prizes at 5 PM on Friday, 1 July, in the Telecommunications Staff Cafeteria, Telecom's Communications House, Brisbane

Application forms are available from the GPO Museum or by writing to the Secretary of the Postal-Telecommunications Historical Society, GPO Box 6000 Brisbane, Qld 4001.

The competition judging will be restricted to Brisbane during June because of the availability of Morse keys.

Queensland's first telegraph line between Brisbane and Ipswich was opened on 13 April, 1861 Morse remained an integral part of the communications system in Queensland until 1964.

This competition is designed to salute the many thousands of telegraph operators who pioneered the establishment of the earliest form of modern communication to the most remote parts of the state

Although Australia Post is holding this Morse Competition in Brisbane only, it is hoped that anyone, male or female, from any part of Australia and who happens to be in the Sunshine State during June, will come along and pound a little brass. The rules don't specifically say it but bring your own key, hand or 'bug' if you wish, as I imagine there's nothing to stop you from using it

No matter if you're rusty or out of practice — or past your best. Most OTs, professional and amateur, are now over their peak I urge all brasspounders, or sideswipers, or idiot stick fiddlers to be in it, for old times sake also, there's no age limit 8-80

If, regretfully you can t participate, come along anyway and see the Museum — it's certainly worth it and *all* will be made most welcome!

Alan Shawsmith VK4SS

AR

VHF UHF - an expanding world

Eric Jamieson VK5LP
10 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time, indicated as UTC.

AMATEUR BAND BEACONS

FREQ	*CALLSIGN*	*LOCATION*
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.020	GB3SIX	Anglesey
50.060	KH6EQI	Pearl Harbour
50.075	VS6SIX	Hong Kong
51.020	ZL1UHF	Auckland
52.013	P29SIX	New Guinea
52.100	VK0AP	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHP	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney (1)
52.425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.470	VK7RNT	Launceston (2)
52.510	ZL2MHF	Mt Climie
144.400	VK4RTT	Mt Mowbullan
144.420	VK2RSY	Sydney (1)
144.465	VK6RTW	Albany
144.475	VK1RTA	Canberra
144.480	VK8VF	Darwin
144.550	VK5RSE	Mt Gambier
144.600	VK6RTT	Carnarvon
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.410	VK6RTT	Carnarvon
432.420	VK2RSY	Sydney (3)
432.440	VK4RBB	Brisbane
432.450	VK3RMB	Mt Bunnyong

1 The VK2WI callsign for the 52 and 144 MHz beacons in Sydney has now been changed to VK2RSY.
2 The Launceston beacon has changed frequency to conform to the WIA band plan, and is now found as above
3 This is a new beacon in Sydney carrying the same callsign as the others.

For further information on the Sydney beacons see below.

THE SYDNEY BEACONS

The Dural Property Officer, Jeff Pages, VK2BYY, has written some interesting information on the VK2 beacons and I pass the following on to you.

"The new licence for the Sydney beacons has now been received The callsign for all the beacons is now VK2RSY, and the 70 cm beacon is at last on the air on 432 420 MHz This beacon runs about fifteen watts into a pair of horizontally polarised crossed dipoles at a height of twenty metres above ground. Frequency shift keying is used for identification The licence also included provision for a 1296 MHz beacon, and construction is now under way The frequency will be 1296.420 MHz

"The antenna of the 2 metre beacon has been replaced resulting in much improved performance The original antenna collapsed last year and was replaced with a temporary antenna, which had also seen better days, until the new antenna could be completed

"We are continuing to receive many reports from overseas on our 10 metre beacon, particularly from Europe Since the beacon went to air at the beginning of 1981 we have received nearly 100 QSL cards. We have also received quite a number of cards from JA confirming reception of the 6 metre beacon

"Looking down the latest beacon list I notice that many beacons are still not on their 'proper' frequencies. A particular problem is VK6RTT on 52.320 MHz, the secondary VK2 frequency, and there are moves to apply for a 6 metre beacon in the Newcastle area."

Thanks for the letter Jeff The custodians of the VK6RTT beacon might note the above comment in regard to the 52.320 frequency, and assess the position with a view to making a change in due course and thus allow the proposed Newcastle beacon to start on its 'proper' frequency!

I would hope that when the VK5 beacons are finally set up again that they would be on the frequencies assigned by the band plan. However, any suggestion of this in South Australia brings about a violent reaction in certain quarters because of possible desensitising of receivers in the prime VHF areas of Adelaide, largely due to the commanding position the beacons have on Mt Lofty. So what do you do? You can't win!

SIX METRES

The month has certainly seen some ups and downs on the band, mostly downs I would venture to say in the southern areas Several brief openings to Japan, more on 50 rather than 52 MHz One bright spot for VK5 was the reception of KH6IAA on 50.110 at 0355 on 16/4. Al came up on the band in response to a request from Col VK5RO as Al was pretty good on 28.885 at the time Signals on 50 110 were rather weak so there was little likelihood of a contact emanating on 52 MHz.

15/4, 16/4 and 17/4 saw some extended periods of Es activity between VK2,3,4 and 5 depending on where you live! VK2 and VK4 were the main signals into VK5

15/4: Ross VK4RO reported strong signals from JA1 and JA3 between 0443 and 0503, and VK2 were working ZL I heard on the grapevine that VK2DDG and possibly others worked KH6IAA around 0330

16/4. A good Es day, with strong signals from VK2 VK2DDG said to have worked KH6IAA At 0410 VK8GB was S4 at KH6IAA on 52 050 CW, and subsequently a contact emanated KH6EQI noted on 50.060 VK4RO (Ross) reported very strong signals from H44HIR, and Ross worked Peter H44PT with very strong signals both ways. In fact, Ross had no trouble working Peter even when he used his handheld rig! Ross also worked VK2 4 and 5, and reported the MUF only rose to 51 MHz and not 52 MHz on the JA path Heard JA6 on and off, short openings, between 0300 and 0400. A P29 was reported active and working VK2 and VK4. Nothing heard from W, the MUF not being high enough

17/4 H44PT worked VK4RO 5 x 9 at 0600, and other stations in the Townsville area mainly, namely VK4JH, VK4ZYA, VK4ZHO, around 0500. VK4RO to VK5LA (Woomera) at 0612 5 x 9. At 0800 VK4RO to H44PT again, Peter still hearing the Townsville beacon as late as 0850 The band was open to H44 for more than three hours. VK4RO to VK2ZQX at 0801, VK2DOA 0810, VK4KAA at 0818, finishing this contact with VK4KAA on 80 metres (what!!) cross-band because of Ch 0 problems at his end! Also worked VK4PU 0834

TWO METRES IN THE NORTH WEST

Dennis Hardie VK6KOZ has sent along some good information on 2 metre activity in the North West of Western Australia, describing it as fantastic, and regular contacts are being made between Exmouth, Karratha, Wickham, Port Hedland and Derby both direct and through repeaters Exmouth to Karratha is 320 km Karratha to Wickham 30 km, Wickham to Port Hedland 170 km, and Port Hedland to Derby 630 km He goes on to say

"On Saturday 2/10/82 we were having trouble with apparent pirate activity on our repeater transmit frequency 147 MHz Later in the day you could make out words which were obviously Indonesian Mark VK6WV was the first to make contact when he finally got a call sign and broken English coming back to his call Harry YD9BC and Gede YD9BR in Denpassar on Bali asked us to QSY off their official Police Frequency! At this point we closed down the repeater to prevent more interference on their band (Lots of Port Hedland people holiday in Bali)

"Contact was continued direct on 146 500 MHz with two way signals averaging from 5 x

5 to 5 x 9 with powers ranging around 10 to 80 watts and antennae from a vertical 5/8 at 15 metres to a 4 element quad at 20 metres. On Sunday they were there again and over the two days stations from Port Hedland, Brian VK6AIH, Dennis VK6KOZ, John VK6AFA, Mark VK6WV, from Wickham, Pattie VK6SL, Karratha Dave VK6YA, Scott VK6KES. John VK6KOJ, Nigel VK6KHD and from Exmouth Steve VK6ASF worked into Indonesia over a path of 1350 to 1400 km

"Over the next few days we often heard interference to our repeater and someone would drive out to the Club and shut it down I see by my log that on 13/11 they were 4 x 1 direct Further contacts were made with Harry YD9BC and at times Brian VK6AIH could receive some of the Indonesian TV stations Brian is on a small hill right on the coast and used eighty watts to a four element quad at 20 metres so is in the best position for 2 metres He worked Indra YD9BAI and Jayaprana YD9BAR in Denpassar on 22/10 with 5 x 9+ signals both ways!

"The next contact I made with Indonesia was 22/1/83 at 0834 5 x 1 with Syahrir in Lombok with a call sign of J609; it is not known for sure if this is an amateur callsign

"Around February 1983 Indonesians were again breaking through but this time on all three repeaters They were asked to QSY off the Wickham repeater (146 100 MHz input) as the batteries were getting run down, again a number of our amateurs worked them with good two way reports Since then activity has been restricted to the local area, working Derby through the Wickham repeater etc

"Now that we are aware of the two metre DX we are now better prepared, people turn antennas to different directions and scan the band more often so next year when the DX bands open up who knows what we will find"

Wickham repeater operates on Channel 2, Karratha Channel 4, Newman Channel 6, Port Hedland Channel 8

MOONBOUNCE REPORT

Lyle VK2ALU in "The Propogator" advises that Barry VK2ZAG had the satisfaction of seeing the newly set up dish moving in both Hour Angle and Declination under its own power on 26.3, largely as a result of some forty hours of his wiring work, and earlier motor replacement and gearbox repairs by Wojciech

Another step forward was on 26.3 when the feed tripod, made up of 6 metre long tubes, was installed in the dish by a four man team under the leadership of Ian VK2EXN, who had made up the apex plate and tube plug arrangement for the tripod

Construction of the transmitter 1296 MHz low level driver stage is now well under way and more useful information has been received on another type of GASfet low noise receiver preamplifier It is intended to make up one of this type and one of the W6PO design to compare results and to provide the necessary preamplifier — postamplifier stages for the receiving system

So it appears something is now being seen for the fruits of their labours by this loyal band of people who have had to go to so much extra work in shifting the original dish because of vandalism

NEWS FROM TASMANIA

Joe VK7JG has written to fill in the blanks in the information occasionally received from VK7, and reports as follows:

"VHF activity is almost non-existent in VK7 except for the 2 metre VK3 to VK7 'inversion' contacts.

"However, quite a lot of construction has been going on We now have a UHF repeater VK7RAB, Tx 438.625, Rx 433.625, situated on Mt Arthur at 1128 metres asl giving excellent coverage of Launceston and the North West coast. The equipment is a modified Icom IC400 and running twelve watts to a VK7JG diplexer and VK7JJ antenna array, receiver as standard 12 dB SINAD at 0.6 uV We are at present working on a replacement unit using an AWA 15M fitted with a twenty five watt PA and GASfet pre-amp and possibly two aerials, thus eliminating the losses in the diplexer

"The antenna is rather unusual, designed and constructed by VK7JJ It consists of a coaxial dipole fitted with two sets of directors and a reflector. It gives a cardioid pattern with a 20° beam width, and a null of about 55 dB at the back. The aerial is orientated to put the two major lobes towards the North West coast and Hobart. Launceston is only 20 km away. We hope to stack a pair of these, one receive and one transmit, within the next six months

"The repeater is solar powered, using 3 x 2.2A Lucas panels and 105 AH battery, being shared with a commercial system. The next repeater will incorporate an 'economiser' to reduce the standby current consumption

"VK7REC (Tx 146.9, Rx 146.3) is a repeater situated on Snow Hill elevation 823 metres, giving excellent coverage from Hobart to Launceston and parts of the East and North West coast

"Equipment is a 'Tait' VHF High Band mobile unit fitted with remote hi-lo power switching plus several other functions. Power out is fifteen watts hi, five watts lo Receiving sensitivity 0.2 uV for 12 dB SINAD at the input to the cavity filter system. Tx antenna is a 'plumbers delight' as per ARRL Handbook, Rx antenna AEA Isopole. Tune up and alignment by VK7JG; callsign generator and construction by VK7JJ; remote command system by VK7ZBA, Filters construction and alignment by VK7PF; installation by VK7ZBA This repeater is also solar powered, and once again sharing its solar panels and batteries with two other commercial systems

"A novel feature of the callsign generator is that its tone is voltage dependent, and by listening to the pitch of the tone we have some idea of the state of charge of the batteries And VK7RAB is to be fitted with a voltage to frequency converter, thus exact battery voltage can be determined by the tone of the callsign

"A UHF repeater is under construction for the Hobart area and one on 438 600 for the Central Highlands" Thanks for writing Joe.

OVERSEAS ON SIX METRES

It is interesting to look over some of the listings of contacts made from Japan during the period 24/10/82 until 28/2/83, a period including the northern hemisphere winter when one would have expected less contacts, but they still seem to keep coming

I am indebted to the Japanese "CQ ham radio" magazine per kind thought of Graham VK6RO for the following. Throughout the period contacts have been made with VK stations somewhere on almost every day, mostly to VK4 VK6 and VK8 but quite a sprinkling of VK2, VK3 VK5 and VK7 Apart from these, other exotic call signs have included KG6JDX, P29ZSA, P29ZFD, VS6BT, VK9ZYX, H44PT, KB7IJ/KH2, P29QA, YB30N, 4D1PJS, KG6DX, WA4TNV/KL7, VS5DX, PY5AQ LU7DZ LU3EX, VS6XMQ, DU1JZ, DU1WEN LU9DER, LU2DEK LJ1FDQ, PP5WL LU3DCA, CX4BA, LU4DGN, LU9AEA CX9BBF, LU8AHW, LU6DLB KC6IN KH6IAA, K5EFW, WA6PEV, K7ICW, W5FF N6AJ, N6CT, WA6BYA, K6QXY, WB6VGL K6MYC, WA7JTM WA6IJZ, WA7EPU CE3HCE, T32AB, W6UXN, KD6PY W6SMS, KA6ING, KB6OK, WA8LLY WA6JRA, DJ1RGM, WA6THT, KH6IJ PP5WL, LU8EEM, FK8CR, HL1XC, VS5JH, K6PXT, KH6DLW, WA7OLF, WA8LLY/6, K6JZK, WA7YWM, WB6VIM, K6UJG, WA6KLK K6QXY, W6JKV/KH0, VS6XMT, VS6EL, VS6CT, HL2JD HL1RB, HC2FG VS6XLA, HL5BBB HL1XC HL1SB DU1RFA, CR8CT, VS6XLP, A35GW, DU1PJS, VS6GW, VS6XNB DL1RGM, DU1VST, YC2BSF, W6DMJ/KH6, W1XX/KH6 plus numerous contacts with ZL1 2, 3 and 4 Many of the stations listed above were contacted time and time again, and almost without exception were on 50 MHz centred around 50 110 MHz

In addition to the above, the following beacons were logged. VK7RNT VK6RTT, VK8VF, H44HIR KB7IJ/KH2 VS6SIX, P29SIX, ZB2VHF, KH6EQI WA7TNV/KL7, ZL1UHF, VK2WI, VK2RGB, VK2BNT, VK4RTL, ZL2VHM VK3RMV, VK6RTV, and some of these heard on many occasions It is interesting to note that the hearing of a beacon in a certain area was then followed by quite a number of contacts to that area, indicating the beacons are serving their purpose in alerting those who are listening

In Japan the segment 50.000 to 50 010 is exclusively CW 50 010 to 50 100 CW and RTTY, 50.100 to 51 000 AM SSB RTTY CW, SSTV, 51 000 to 52 000 FM AM SSB CW; 52 000 to 52 500 RTTY, SSTV FAX AM, SSB, FM CW, 52 500 to 54 000 FM RTTY, SSTV, FAX, etc FAX is also permitted between 50.100 and 51 000 Some of the segments are for narrow band FM, others allow up to 16 kHz

My reading of the Japanese language is not too good, but from "CQ ham radio" per VK6RO, February 1983 edition, there is an outline of the contacts made by JE1JKL who was 5Z4CS from September 1981 until November 1982, and worked A35JT, EL2AV EL2FY, H44PT, JH6, JA6, JA4 JH4, JR6, KG6DX, KH6HI, SZ2DH, P29ZFS PY2 PY6, PP5WL PY4, VK8GB YB3, YB1, YC1 YC2, YB6, ZD7BW, ZD8TC ZS5TR, ZS6 ZS3E, ZS3AK, 5B4AZ, 8P6KX, 9Y4 In addition the following were heard FY7THF H44HIR, HC2FG, I5TDJ JH1ECU, JH4JPO KH6EQI, LU3EX, PY1AA, PY2AA, VS6SIX YC2COP, DL3ZM/YV5, 5B4CY 9Y5L ZS6PW ZS6DN, ZS6LN, ZS5VHF, ZR6AW ZS6WI, most of the last ZS6s being beacons. It looks as though it pays to go overseas at times!

TWO METRES EME

From Bill W3XO in "QST" and "World

Above 50 MHz" comes an interesting report of W5UWB continuing to amaze himself and the EME community by having contacts via the moon using only a single yagi, a Junior Boomer. He has completed two way contacts with K1WHS, WA1JXN/7, SM7BAE, SM2GGF, KI7D, VE7BQH and WA6MGZ. All these stations have fairly large arrays except WA6MGZ who has a six yagi array

Dave, W1WHS has done much to convince others that those with single yagis and sufficient power can have EME contacts with stations using large arrays at the other end. Dave has a huge array of 24 Junior Boomers and these have been up for 2½ years He always finds new stations to work on every moon perigee. Particularly in Europe, there seems to be a never ending source of new stations who want to work him. During the December and January perigees, Dave contacted twenty one new stations, many of them with single yagis. Some recent QSOs include UD6DFD, UK5EDT, YU1OYK, DF0VK, KG6DX and KI1KN. Also worked was VK5MC with 589/599 signals, and a single yagi station DJ5MS with 539 both ways.

In line with the above report, it seems you chaps with your 400 watts on 2 metres to a thirteen element yagi or larger could well be in the ball park for some contacts with stations such as Dave W1WHS.

Finally, I note from "Break In" that the ZLs are having a "Six Metre Only" contest on 5/11/83, commencing about 2330 and on 3/4 December 1983 will be the VHF/SHF Field Day Contest, starting on the Saturday afternoon and continuing through until the Sunday afternoon. Anyone in Australia want to sponsor a VHF Field Day to coincide with the above? The Geelong Club tried to get a field day contest going, but it collapsed for want of support, can anyone else get people moving?

Peter VK3FR accepts six metre equipment from Neil VK6NE.

WILLIS ISLAND GIFT

Neil VK6NE, whilst at the Federal Convention, took the opportunity to hand over six metre equipment to the Bureau of Meteorology for use by amateur stations based at Willis Island

The equipment a Yaesu FT680R and the Werner Wulf beam that was used at Heard Island was accepted on the Bureau's behalf by Peter VK3FR

The equipment which was donated by the VK6DX Chasers Club will be permanently installed on Willis Island.

The new operator from this month through to the December changeover will be Graeme VK3DSB.

CLOSURE

As you can read, there has not been such a lot of general VHF activity during the past month, in fact, the March-April period this year has been somewhat disappointing, but I guess generally in line with what could be expected at this time of the Cycle

Closing with the thought for the month, "If you want your friends to be perfect, you'll never have any." 73. The Voice in the Hills.

AR

WHO IS THIS AMATEUR???

Peter Brown VK4PJ,
VK4 Historian
16 Bede Street, Balmoral, Qld 4171

1928 to 1931 saw him with the experimental licence OA4FN when he was a member of the Wooloowin Radio Club He left amateur radio for a few years to return with his present call sign in 1935.

In 1946 he was a member of VK4 Council and 1947-48 saw him as a Federal Councillor

From 1946 to 1951 he carried out simultaneous VK4WIA broadcasts on six bands.

He went to New Guinea in 1951 and founded the VK9 Division, becoming President in 1953 a position he held until 1959.

In 1959 he returned to Brisbane with his original call sign, and later moved to Rockhampton where he founded the Central Queensland Branch, where he was President from 1961 to 1968.

Back in Brisbane he carried out VK4WIA broadcasts on 80 metres from 1973 to 1981

When in New Guinea he figured prominently in the two searches for the YASME expedition's Danny Weil which history is preserved I believe in "AR"

He has always figured prominently in Scouting radio activities particularly Jamboree on the Air Last year he designed, built and operated the transmitter, on 1 610 MHz, for the Scout Jamboree in Queensland.

He has been top scorer in RD Contests for VK4 and VK9 A year or so ago he was presented with the Queensland Division Merit Badge and certificate for service to Amateur radio You are right . . . he is Frank VK4FN

AR

Still More Usable Antenna For Your Money . . . PLUS 30 Metres!

That's right, Butternut's new Model HF6V offers you more active radiator on more bands than any other vertical of comparable height at any price. The HF6V's exclusive Differential Reactance Tuning ™ circuitry lets the entire 26-foot antenna work for you on 80/75, 40, 30, 20 and 10 meters, and a loss-free linear decoupler provides full quarter-wave unloaded performance on 15 metres. Better still, the HF6V can be modified —without surgery — for the remaining WARC bands when the times comes. Here are just a few of the features that make the HF6V the ideal WARC antenna for your new WARC station:

- Completely automatic bandswitching 80 through 10 metres, including 30 meters (10.1 — 10.15 MHz), 160 through 10 metres with optional TBR-160 unit
- Retrofit capability for 18 and 24 MHz bands.
- No lossy traps to rob you of power. The HF6V's three resonator circuits use rugged HV ceram c capacitors and large-diameter self-supporting inductors for unmatched circuit Q and efficiency
- Eye-level adjustment for precise resonance in any segment of 80/75 metres, inc uding MARS and CAP ranges. No need to lower the antenna to QSY between phone and cw bands.
- For ground-level, rooftop, tower installations, no guys required

Suggested amateur net prices:

Model HF6V (automatic bandswitching 80-10 metres) $282
Model TBR-160 (160 metre base resonator) $66
Model 30MCK (30 metre conversion kit for HF5V-II/HF5V-III) $56*

*When supplied as part of HF6V

Electrical and Mechanical Specifications

Shipping Weight: 12 lbs/5.4 kg
Height (adjustable): 26 ft./7.8 m
Feedpoint impedance: nominal 50 ohms with included matching section
VSWR at resonance: 1.5:1 or less on all bands
Bandwidth for VSWR of 2:1 or less: entire 10, 15, 20 and 30 metre bands, 250-300 kHz on 40 metres 30-90 kHz 80/75 metres
Power Rating: 2 kW PEP/1 kW cw input 80 through 10 metres
Wind loading area: 1.5 sq ft/ 15 sq m

BUTTERNUT ELECTRONICS CO.

For complete information concerning the HF6V and other products, amateur and commercial, contact the sole Australian distributer.

Traeger Distributors (NSW) Pty Ltd, PO Box 348, Cnr. Adelaide & Chester St., Moree, NSW. 2400 Phone (067) 52 1627

Editor's Note (CQ Review)

The Butternut HF5V- II is being phased out in favour of their new HF 6V. This new antenna will elim nate the reduced power ratings of the former antenna on 80/75 metres. Ceramic capacitors are used instead of the concentric tub ng capacitors, and the 10 MHz band is included. This review, although of a previous model, depicts accurately the theory of operation of the Butternut antennas both old and new. We suggest that you check their ads for any adapter kits and/or accessor es.

K2EEK

CONTESTS

Reg Dwyer VK1BR
FEDERAL CONTEST MANAGER
PO Box 236 Jamison, ACT 2614

CONTEST CALENDAR

JUNE	
4-5	RSGB National Field Day
11-12	World Communications Year RTTY
11-12	South American CW Test
11-13	6th VK/ZL Oceania WCY RTTY Test
11-12	ARRL VHF Test +++
18-19	All As an Phone (Log & Rules available FCM)
18-19	Nine Lands CW Test
25-26	ARRL Field Day
JULY	
1	Canada Day Contest
2-3	Venezuela Phone Test
9-10	NZART Memorial Test (June AR)
9-10	IARU Radiosport Test
16-17	International QRP Test +++
16-17	SEAnet CW Test +++
30-31	Venezuela CW Test +++
AUGUST	
6-7	European CW Test +++
13-14	Remembrance Day Contest
13-14	DARC WAE CW Test
13-14	SEAnet Phone Test +++
20-21	SARTG RTTY Test
27-28	All Asian CW Test
SEPTEMBER	
3-4	DARC Corona ' Corona ' 10 m RTTY
10-11	G QRP Activity +++
17-18	VK Novice Test
17-18	Scand navian CW +++
24-25	Scandinavian Phone +++

The contests marked with +++ are not yet confirmed

REMEMBRANCE DAY CONTEST 1983

Please note the changes

AUGUST 13th-14th

This contest is held to commemorate those amateurs who died during the Second World War and is designed to encourage friendly participation between all amateurs and to help in the improvement of operating skills of all partic pants

Th s contest is held annually during the weekend nearest the 15th August, the date on which hostilities ceased in the South-west Pacific area

The contest is preceded by a short opening address on all WIA frequencies by a notable personality

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia It is inscribed with the name of those who made the supreme sacrifice and so perpetuate their memory throughout amateur radio in Austra ia

The name of the winning D vision each year is a so inscribed on the trophy and in addition, the winning Division will receive a suitable certificate.

OBJECTS

Amateurs in each VK call area will endeavour to contact other amateurs:

1. In other VK call areas, P29 and ZL on all bands 1.8 through 30 MHz, except 10 MHz
2. In any VK call area (including their own), P29 and ZL on authorised bands above 52 MHz and as indicated in Rule 5.

CONTEST DATE

0800 UTC 13th August, 1983, to 0759 UTC 14th August, 1983

All amateur stations are requested to observe 15 minutes silence before the commencement of the contest on Saturday afternoon An appropriate broadcast will be relayed from all Divisional stations during this period

RULES

1 THERE SHALL BE 4 SECTIONS.
- (a) Transmitting Phone
- (b) Transmitting CW
- (c) Receiving
- (d) Open

2. ALL AUSTRALIAN AMATEURS (VK callsign) may enter the contest whether their stations are fixed, portable or mobile Members and non-members of the Wireless Institute of Australia are eligible for the awards
3. AMATEURS MAY USE THE FOLLOWING MODES:
   Section (a) — AM, FM, SSB, TV
   Section (b) — CW, RTTY
   Section (c) — Rx A, B, C
   Section (d) — All modes
4. CROSS MODE OPERATION is permitted Cross band operation is not permitted excepting via satellite repeater
5. SCORING CONTACTS
   (a) On all bands a station in another call area may be contacted once on each band using each mode That is, you may work the same station on each of these bands on Phone, CW, SSTV and RTTY
   (b) All contacts score one point
   (c) On the bands 52 MHz and above, the same station in any call area may be worked using any of the modes listed in Rule 3 at intervals of not less than one hour since the previous same band/mode contact However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit
   (d) Acceptable logs for all sections shall show at least 10 valid contacts
6. MULTI-OPERATOR STATIONS ARE NOT PERMITTED (except as in Rule 7), although log keepers are allowed Only the licensed operator is allowed to make a contact under his/her own callsign Should two or more licensed operators wish to operate any particular station each will be considered as a contestant and must submit a log under his/her own callsign.
7. CLUB STATIONS may be operated by more than one operator but only one operator may operate at any one time, ie no mult - transmission. All operators must sign the declaration
8. ENTRANTS must operate within the terms of their licences
9. CYPHERS.
   The serials number will consist of three figures that will be incremented by one for each success ve contact A contestant may start with any number between 001 and 999, but when 999 is reached he wi l start again at 001
10. ENTRIES
    Entries must be set out as shown in the example using one side of paper only. Envelopes must be marked "Remembrance Day Contest ", postmarked no later than 15th September 1983, and posted to FCM, Box 236 Jamison 2614, and **received not later than 30th September, 1983**
11. TERRESTRIAL REPEATERS
    Contacts via terrestrial repeaters are not permitted for scor ng purposes. However contacts may be arranged through the repeater and, if successful on another frequency, that contact counts for scoring purposes
12. PORTABLE OPERAT ON
    Log scores of operators located outside the r own call area w l be credited to that call area in which the operation takes place, eg VK5XY/2 His score is added to the VK2 scores
13. ALL LOGS shall be set out as in the example shown and, in addition, must carry a front sheet showing the fol owing nformat on in this order
    Section score callsign, mode name and address
    Declaration "I hereby certify that I have operated in accordance with the rules and spirit of the contest."
    Signed ..... Dated .....
14. THE FEDERAL CONTEST MANAGER has the right to disqualify any entrant who during the contest, has not observed the regulations, or has consistently departed from the accepted code of operating ethics The Federal Contest Manager also has the right to disallow any illegible, incomplete or incorrectly set out logs
15. THE RULING of the Federal Contest Manager of the WIA is final and no disputes will be entered into

AWARDS (Sections (a) and (b))

Certificates will be awarded to the top scorers in each section for each call area and will include the top l mited and novice station There will be no outright individual winner Further certificates may be issued by the FCM at his discretion

Certificates will be issued to top ZL and P2 scorers

VK0 scores are added to VK7 and VK8 to VK5

Scores by VK9 stations are added to the mainland call area geographically nearest Scores claimed by ZL and P2 stations are not included in the scores of any VK call area

The trophy sha be forwarded to the winning Divis on in ts container and will be held by that Division for the specified period

RECEIVING SECTION

1 THIS SECTION is open to all shortwave steners in Austra a, Papua New Guinea and New Zealand, but no active transmitting station may enter
2 CONTEST TIMES and logging of stations on each band are as for transmitt ng
3 ALL LOGS shall be set out as in the example It is not permissible to log a station calling CQ" The detail shown in the example must be recorded
4 NOTE the times and conditions set out in Rule 5 (transmitt ng)
5 CLUB STATIONS may enter this section All operators must s gn the dec aration

AWARD'S FOR SWLs

Certificates will be awarded to the highest scores in each cal area Further certificates may be awarded at the discretion of the Federal Contest Manager

RD SCORE FORMULA

This year's weighting factor and formula is as for ows

Tota Contacts per Div sion / Tota licences Issued X Weighting factor

The 1983 weighting factors for each division are

VK1	1 15
VK2	9.58
VK3	7 16
VK4	5 33
VK5/8	1.76
VK6	1.22
VK7	0 84

This s prov ded for advice only The formula s applied by the FCM to the final [illegible]

The 1982 pred cted weighting factors turned out to be very close to the actual figures gained from the results of the contest Re ationsh ps of the predicted and actual W/F 1982

DIV	PREDICTED	ACTUAL
VK1	1.2	1.01
VK2	10.72	7 1
VK3	7 85	5.63
VK4	4 82	4.88
VK5 8	2 08	1 13
VK6	1.47	1
VK7	0.87	1.12

Should each State perform equally as well in 1983 as in the past n ne years (averaged) the results w become a seven way dead heat Consequently the most improved State will take the trophy and a so earn a revised and lower weight ng factor for the follow ng year

DUPE SHEETS

To assist in speeding the results of the contest, you can include a dupe sheet with your og

This dupe sheet assists you in determining your previous contacts and assist me by providing me w th an accurate log

Republished here for your assistance is a method of produc ng a dupe sheet which will take very little time to complete during a contest and will save all that looking through log sheets to see if you are duplicating your contact again It should also provide a faster turnover of contacts I strongly advise your use of this sort of exercise

Dupe sheet is republished from an article in AR July 1981 by John Moulder VK4YX

DUPE SHEET FOR THE REMEMBRANCE DAY CONTEST

Avoiding duplications on your log sheets during a contest can be a problem, even if you have only worked 50 contacts. The method I am about to describe is not original I came across an article in a 1960 edition of AR, which described a method of using a dupe sheet for each VK call area, plus one for ZL and P29 As you can probably surmise, it was evolved for the annual RD contest

Juggling a few sheets during a contest didn t appeal, so I adopted the basic idea and came up with the following

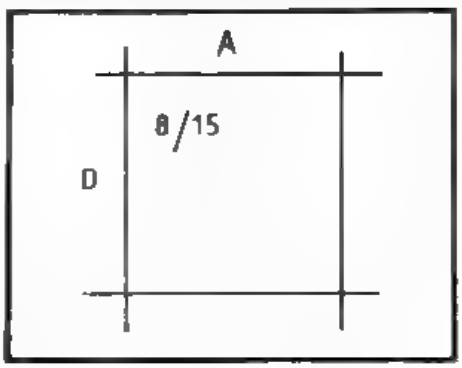
I obtained a sheet of thin white cardboard approximately 60 centimetres square from the newsagent I measured in 4 centimetres from each side and drew a border Along the top and bottom and likewise down each side, make a mark each 2 centimetres Draw a grid pattern by interconnecting all the marks top and bottom and side to side At the top and bottom of each column, starting from the left-hand side, mark each letter of the alphabet Do the same down each side, starting at the top

The top left-hand corner should look like Fig 1

FIGURE 1

Along the top of the cardboard we label FIRST CALL LETTER Down the sides we label SECOND and THIRD CALL LETTERS We are now ready to go

As an example say we worked VK8BD on 15 metres Looking across the top of the sheet, we locate column B, down the side we locate column D, in the intersecting square we write



[illegible]

8/15. See Fig 2 If you worked P29BD on 10 metres, you would enter P29/10 in the same square. We can take two further steps if needed You may ike to enter the mode after the callsign and the time of contact, if t can be squeezed in

Very clever you may be think ng, but what about a callsign with a three letter suffix? As an example we ll say we worked VK78CC on 80 metres CW and ZL2BCA on 15 metres SSB We locate our intersecting square of B C, and we enter 7C/80CW Underneath this entry we write ZL2A/15SSB See Fig 3 All the nformation can be fitted in a 2 centimetre square if you use a fine tipped pen You could use arger squares however the size of cardboard needed may make it too unwieldy This system is used hand in hand with your normal log sheets What I did was work a string of stations, enter them on the dupe sheet, and then continue on in a merry way

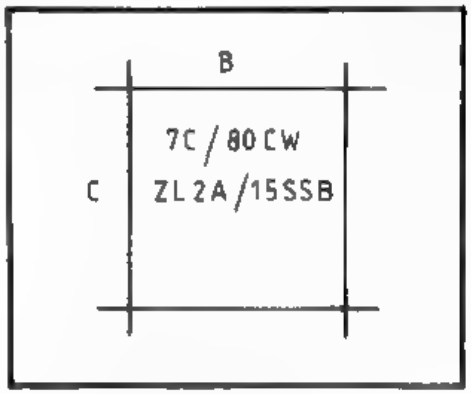


FIGURE 3

The only problem I can envisage is the size of the sheet may make it unworkable for some operators I got around the problem by taking over the kitchen table which just happens to be beside our wood burning stove (very cosy) I had a great time during the 1980 RD I made my best score with no duplications Unfortunately I completely forgot to send my log sheets in. Give this system a go

LATE NOTE. Please ensure that you keep your phone signals out of the RTTY & CW sections of the band as the RTTY boys are intending to boost interest in this mode

RESULTS OF THE 23rd ALL ASIAN CONTEST FOR VK

PHONE As per results published page 37, May AR

CW

CALL	SCORE
AX3XB *	868
VK3RJ *	1363
AX4XA *	19376
AX2AYD *	119260
VK3AEW	48094
VK6JS	20500
VK2DID	6148
VK5GZ	748

NZART MEMORIAL CONTEST

When? Sat and Sun 9/10 July from 2000 to 2400 hrs each night, divided into four operating periods, 2000 to 2200 and 2200 to 2400 each n ght

CONTACTS

A station may be contacted twice during each period once on phone and once on CW provided the contacts are not successive

CYPHERS

Five serial numbers for phone and srx for CW (RST and three figure SERIAL eg 599001)

SCORING

Phone Each area will score fifteen points for the first contact then each subsequent contact scores one less point each time until the fifteenth contact when all further contacts will score only one point

CW The same as the phone scoring except that the points will remain at five after the 11th QSO

LOGS

In order of Date Time Station Contacted Phone or CW Cypher Sent Cypher Received Points Claimed

Logs to be sent to Jock White NZART Contest Manager, 152 Lytton Rd Gisborne New Zealand Must arrive no later than 10th August 1983

A photocopy of the rules may be obtained from the FCM at above address

RESULTS OF THE 1983 JOHN MOYLE NATIONAL FIELD DAY

SECTION A

24 HOUR SECTION			6 HOUR SECTION		
CALL	SCORE		CALL	SCORE	
VK3XQ	2715	*	VK6NSD	2317	*
VK2KFJ	464		VK3CGH	1315	
			VK5QX	1097	
			VK3KI	1034	
			VK4NOW	870	
			VK3DAW	218	
			VK3VF	185	

SECTION B

Nil entries for 24 hour section

VK2QM	139	*
VK3BKU	97	

SECTION C

Nil entries for 24 hour section

VK3BAF	979	*

SECTION D

VK4WZ	9737	*	VK4WIN	3745	*
VK3APC	8185		VK3ATO	2126	
VK3ANR	7459		VK3SAS	1945	
VK3BGG	4660		VK3DIP	1763	
VK3XK	4099		VK3DBS	1610	
VK4CAU	3211		VK4WIM	1122	
VK5ACE	3115		VK2BOR	659	
VK2AZI	3020		VK3BMV	627	
VK5ARC	2798				
VK5BPA	1172				

SECTION E

VK3BML	10167	*	VK3ER	3577	*
VK2WG	7763		VK3WIA	1429	
VK3ATM	7326				
VK2DBK	7144				
VK3AWS	6384				
VK4WIT	4348				
VK5LZ	4010				
VK4WIG	3390				
VK8DA	2639				
VK1WI	1964				

SECTION F

Nil entries for 24 hour section

VK2EL	1161	*
VK3SP	527	
VK5YO	297	

SECTION G

VK5BW	3909	*	VK4QC	1320	*
			VK2AOA	824	

SECTION H

VK3YTT	795	*	VK3AVJ	609	*
			VK3YTO	404	
			VK5DL	56	

SECTION I

VK2TR	515	*	VK3LC	825	*
VK4AOF	465		VK3XB	690	
VK5DL	105		VK2BQS	680	
			VK1DL	515	
			VK7AL	450	
			VK3DAK	335	
			VK7NIM	310	
			VK3KCC	175	

SECTION J

L30042	65	*	L40804	700	*
			L60036	310	

Check logs were sent in by VK2EES and VK3CIF

COMMENTS FROM LOGS

VK3BAF Sorry for the low points but the VK3 boys were involved in WICEN with the bushfires

VK2CGH . Many thanks for the very enjoyable days participation.

VK2BQS . . . A very friendly and enjoyable contest again this year

VK6NSD This was my first year in this contest and really enjoyed myself

VK4CAU The change of rules leaves a little to be desired. The rule for contacting home stations once only needs reversing. No incentive to enter Section H. The change to CW makes no difference to our log as we do not use CW in contests. The thunderstorms did not affect the contest only four hours rain

OAKLEY ARC Washed out Saturday in this area but looking forward to next year's contest

L30042 Once again a most disappointing contest insofar as CW operating in the field was concerned — sheer contempt of the stated objective of the contest!! — viz "to encourage portable operation

Logs from time immemorial It has been world wide contest practice to list date and time headings as the first two items (Rule 16).

As you can see, the vast majority of the comments were for an enjoyable contest

Congratulations to the winners (those marked with the *)

SPECIAL NOTICE

Don't forget the VK Novice Contest this year. Let's make a special effort to assist the novices and show some interest in this special contest.

AR

ALARA

Australian Ladies Amateur Radio Association

Margaret Loft VK3DML
28 Lawrence Street, Castlemaine, Vic 3450
Photographs courtesy of Geraldine VK2NQI

Ladies don't forget the Annual General Meeting on Monday 25th July at 1030 UTC on 3.570± QRM. Please make an effort and join this important net, it is your association and we want all of you to help ensure it continues in the future.

If you cannot come up on air write to one of the executive and tell them your ideas, all suggestions will be discussed. Remember united we stand and divided we fall.

Welcome to new members.
Peggy VK6NKU joined 15.2.83
Dorothy VK2NVQ joined 17.3.83
Val VK4KCJ joined 7.4.83

Sponsored members:
Vicky T3OCH 9.3.83
Heidi DF3LX 12.3.83
Joan N7DGP 11.4.83

Unfortunately a number of our members have not renewed membership this year, so numbers are down on last year. So girls please if you are one who has forgotten to pay send your sub off now to ensure you are not removed from the mailing list for the newsletter. Marlene, our editor, does an excellent job with the newsletter and we all look forward to receiving the next issue.

Thank you Marlene from us all. Marlene and Brian were involved in the Ash Wednesday fires and all members were concerned for them. One of Marlene's first comments afterwards when we were speaking to her on air was don't worry the gestetner and newsletters are OK!! I would not have given them a thought.

ALARA's good wishes go to Kate Duncan one of our associate members in your Obstetrics and Gynaecological exams, we hope you pass and do well in your time overseas. Kate was one of the early members of LARA but studies in her work have kept her well occupied. I had the pleasure of meeting Ern Kinscher VK2ADL and XYL Ella in Castlemaine recently. Ern was one of the amateurs involved in the Falkland Island rescue when lone yachtsman Richard McBride ran aground on 1st March. Ern has been licensed for fifty years and was formerly in VK4 land.

Joy VK2EBX (formerly VJV and KJC).

Congratulations to Austine VK3YL who has been licensed for fifty three years now, and we wish you many more years of operating Austine.

Marilyn VK3DMS and Geraldine VK2NQI.

This month we include an article written by our editor of the ALARA newsletter about the devastating Ash Wednesday Bushfires.

Marlene Austin, VK5QO and her OM Brian VK5CA are a very well known amateur couple and during the fires in South Australia their house was situated in the path of the fires but fortunately the house was saved amid a blackened garden. However I will leave it to Marlene to tell her story in her own inimitable way.

A SMOKED HAM

It was quite a day, here in the Adelaide Hills. Very hot (42° C) and winds over 100 kph. There was a duststorm, so you couldn't see the flames until they were with you. We probably had 1-1½ hours warning, being on the top of a range of hills and could distinguish smoke from the red dust in the distance.

We have four acres of property and had spent most of last winter burning twigs and fallen leaves. We had also permanently installed a sprinkler system in copper piping on the roof of our home, coupled to our 68,000 litre rainwater tank by a petrol driven pump. Also, we had aluminium blinds over all windows, and have our own alternator. So, we were as ready as we ever would be, and when we saw the smoke in the distance, we knew we were for it. We are at 580 metres, and the gullies in the hills act as funnels for heat and fire.

I can remember saying "2 pm, so far so good". Then seeing the smoke, and it was to action stations! First the bamboo blinds cut down from the front veranda, timber furniture moved indoors, aluminium blinds wired down over windows (didn't trust cords not to burn through), a check that knapsack sprays and hoses were handy (connected to our rainwater tank, not the mains water which vanished in a fire as

Diane VK6KYL, Bill VK6ZX, Geraldine VK2NQI and Alisa and Rivka (harmonics of Diane and Bill).

From Marlene's back door.

everyone else is using it too). We even turned on the bathroom exhaust fan to pressurize the roof cavity.

When all was ready we waited for the first sight of flame before turning on the sprinkler system. As it was, guessing from the smoke, we turned it on about 15 minutes too early, but knowing we had nearly a full tank, it was a comfort to be in our own rainstorm in all that heat and wind. We didn't even think to use umbrellas — never have I been so soaked then baked then soaked again, and not even notice! I sure looked one heck of a mess, though!

Brian my OM (VK5CA) and I were putting out some spot fires near the house, when he said "look behind you" and there was a wall of flame about 15-20 metres high, just our driveway away, going past us up the gully, with a roar like a train. The trees are about 15 metres high, and the flames were over the top of them. At that point we went inside until it passed, possibly 5-10 minutes and then came out and put out what we could after checking in the ceiling that the house was safe. What we didn't know was a spark had got in the 6 mm crack along the garage doors, under the house, and smouldered in a canvas chair before finally going out. That is a lesson we won't forget!

One of our neighbours had also gone inside to wait for the fire to go past, and she sat in her best chair — she said if she was going to die, she was going to do it in style! She shut her pet cockatoo in the toilet (after making sure he couldn't drown!).

The fire was right around our house — the garden is just black trunks and burnt leaves. What wasn't burnt, was singed — it was like a blow-torch over the land. Plastic flowerpots were burnt off plants, hoses burnt to bits, and we lost all our underground services, plastic water pipes burnt in a dozen places, the power went off, and our telephone was out for days. However, in comparison we lost nothing, when you think of the 28 dead, 312 homes lost and something like 12,000 cattle and 317,000 sheep killed in South Australia. In Victoria, on the same day, 45 people were killed and 1,719 homes lost, one of which was the property belonging to my sister Valda VK3DVT (our Treasurer) which was the old family home where our mother grew up as a girl.

Our aerials came through surprisingly well — we lost about 3 metres of co-ax in the dipoles, that's all. The TH6 still seems to be working but the twin flex to the TV is blistered. I was on the Wireless Institute Civil Emergency Net (WICEN) until after midnight — it had been quite a day! Another of our ALARA members, Janet VK3BTU did tremendous work with WICEN in Victoria, and undoubtedly there were others too of whom I have not heard. Marilyn VK3DMS had once lived at Cockatoo, Vic. (one of the hardest hit areas) and Sandra VK4ACJ had lived in Emerald, so were particularly concerned.

Back in SA, two weeks later to the day, we had floods, with 5 metre walls of water demolishing over a dozen caravans and drowning vineyards, market gardens and cattle alike. Feet of mud through homes (ugh!), but luckily no humans killed. What a summer!

Most of our trees are regenerating, the grasses are coming up, so hopefully it won't be long before the hills are green again.

33/73/88 Margaret VK3DML

THE FISK TROPHY

(As told by VK4AW.)

Peter Brown VK4PJ
Amateur Historian for VK4
16 Bede Street, Balmoral, Qld, 4171

In 1933 Mr E T Fisk, later Sir Ernest Fisk, of AWA, donated this trophy for annual competition between Wireless Institute Divisions.

The forerunner of this contest was the "Five Point Relay" in 1932 organised by the then Association of Radio Amateurs, NSW, which was later to become the WIA, NSW Division. This was a CW, (20 word text) message handling contest relayed through four states, plus the originating state.

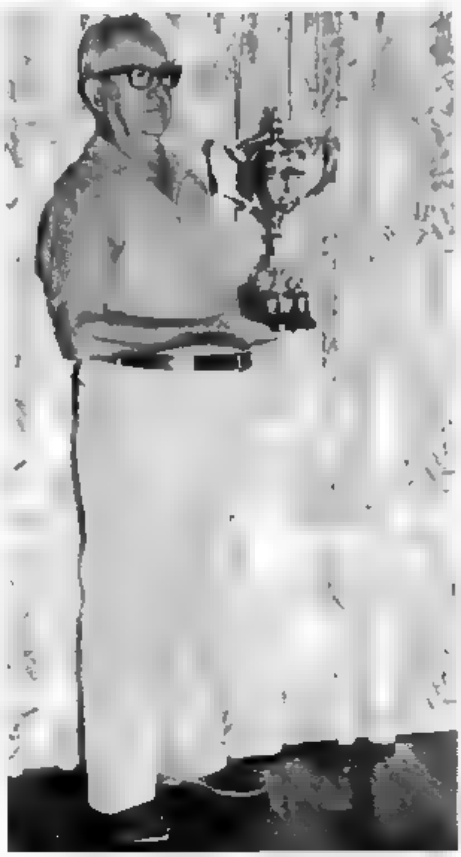
The results of this contest were . . . 1st late Reg Vickary, VK4RV, 2nd C Harrison, VK7CH, 3rd Arthur Walz, VK4AW. This was a real endurance test with top scorers handling between 400 and 500 messages.

Arthur remembers working VK6SA for 3¾ hours handling a total of 60 messages.

1933 was the start of the Fisk Contest organised by the WIA, a "Five Point Relay" held at the end of October and won by the Victorian Division.

1934 was a variation . . a QRP Contest about the same time of the year won by the Queensland Division.

1935, over two weekends in August/September, was a "5 plus 5" ten letter code handling contest won by the Queensland Division. During the occasion of the 12th Federal Convention held in Brisbane, 25th/26th January 1936, at the studios of 4BC Brisbane and 2CH Sydney, Mr E T Fisk, introduced by Mr Bill Moore, VK2HZ, Federal President in Sydney studios, presented the trophy for the 1935 Contest to Arthur Walz, VK4AW, President of Queensland Division, with Harry Caldecot, VK2DA, Federal Secretary, at the Brisbane 4BC studios.



Arthur Walz, VK4AW holding the Fisk Trophy

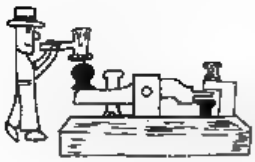
This was a "first" for Radio Broadcasting in that two interstate stations used landline "hook up" to simultaneously broadcast the same programme.

The 1936 contest, held over two weekends in September, with ten letter cypher, was again won by Queensland. Queensland was then declared the outright winner of the trophy and a pre-recorded speech by Mr E T Fisk, who at that time was en route to England, was broadcast over 4BC and relayed to the Queensland Division's 10th Annual General meeting held at the Brisbane Motor Cycle Club rooms Charlotte St on 2nd April 1937. Similar CW contests were held in 1937 and 1938 over two weekends in September and December.

Prominent contestants were the late Roy Belstead, VK4EI (Townsville), late Reg Vickary, VK4RV (Cunnamulla), Bob Beatson, VK4BB (Maryborough), late Alf Guilford VK4AP, and Arthur Walz, VK4AW (Brisbane). They operated from 10 metres through to 160 metres.

It may be accepted that the Fisk Trophy contest was really the forerunner of the present interstate annual contest . . . THE REMEMBRANCE DAY CONTEST.

The photo is an updated version of the photo appearing in the Telegraph newspaper of January 1936 reporting on the presentation of the Fisk Trophy.



POUNDING BRASS

Marshall Emm VK5FN
GPO Box 389 Adelaide SA 5001

Last month I suggested dropping the Tone Report from the standard R/S/T, and I wonder how it's going. These columns are written months ahead of publication, so I haven't tried anything revolutionary yet, but I do believe that if we give honest, impartial readibility and strength reports, with amplification when appropriate, no-one will miss the Tone Report, and if they do they can easily write in a 9. I'm even thinking of leaving it off QSL cards in favour of "ABOLISH THE TONE REPORT" or words to that effect.

Even when an extremely strong (S9) signal is perfectly readable (R5) it can still have technical faults which should be advised in standard format. They don't take up much space, but convey a lot of information. Typical reports might be *5/9/9X* (or better yet, just *5/9X*), *5/9C*, or *3 7 QRN3*. The amplification symbols which should be at every op's fingertips are described below.

X *Fortunately, most signals could be reported as —/—/9X, for their tone is pure and their frequency is stable. If received signals do not vary in pitch, meaning there is no variation in transmitting frequency, then X can be used to indicate that the signal is as stable as a crystal — (Xtall) controlled one.*

C *The symbol C represents "chirp" and is used to describe the sound of a signal in which each character element (dit or dah) changes in pitch in a repetitive fashion. If you hear a CQ which sounds like "cheow-chi-cheow-chi, cheow-cheow-chi-cheow", you are hearing 'chirp'. The problem is usually caused by an unstable VFO or oscillator which gets drawn off frequency each time it comes under load. Most commercial gear is chirp-free, but you can often hear chirpy signals coming from the USSR, where a lot of gear is home-brewed by members of the Radio Sport Clubs.*

D *Sometimes a signal will drift in frequency (the pitch gradually rises or falls), in which case the symbol D is used. This is often a problem where a VFO or oscillator is subject to temperature changes such as the rig heating up as a transmission progresses. I once heard an op in a contest who sounded like a sports-car going up a steep hill. Each time he transmitted he started zero-beat, then took off for the wild blue yonder, sometimes dropping down a bit between words before taking off again. Most drift is more gentle, and of course you should be sure it is not your receiver which is drifting before you send D. Experience is the best teacher in this regard, but as a general rule, it is probably best to ignore a small amount of drift, especially if you only notice it five minutes into the QSO.*

K *Key clicks can be a real problem because they are spurious transmissions which may appear quite some distance from the QSO frequency. They are a clicking, static-y noise which occurs in time with someone's sending. They often result from over-driving the transmitter, so it is a good practice to refrain from running flat-out. Just backing off a little bit from full power can make the world of difference.*

QRM/QRN. Interference, in contrast with technical faults, can be either man-made or natural (QRM or QRN, respectively). The basic principle in reporting QRM/QRN is that if it is causing no problems in copying, don't report it. Just because you can hear it doesn't mean it is causing interference, and you should think in terms of readibility. A report of 5/9 QRM, for example, means "your signal is perfectly readable with no difficulty, and the difficulty is caused by man-made interference(!)"

The main reason for reporting QRM or QRN is so the other station can adjust his sending to suit. Accordingly, the QRM or QRN should be followed by a number from 1 to 5, representing the degree of interference. For example, if you send a report 3/7 QRN 3 the other operator knows you have noisy conditions and will (theoretically) slow down and/or repeat key words. For that matter, there is nothing to stop you from sending "RS 3 7 QRM3 ? RS 3 7 QRM3 PSE QRS10 QRS10 ES QSZ2 QSZ2' which translates as "your readability is 3, your strength is 7, with man-made interference causing significant but not overwhelming problems, please slow down to 10 WPM and send everything twice." Your chances of copying his next transmission are a lot better than if you had sent "RST 3 7 9 QRM'.

If the strength report is high, but the readability is less than 5, then some amplification *almost has to be given*.

One last aspect of reporting deserves comment, and that is the tendency for award and certificate managers to demand "minimum reports". To my mind this is about as silly as you can get, especially when some lid keeps you from qualifying for something by giving you a 5/0/9 report. I personally do not chase paper, at least not much, but I would have to rule out anything requiring minimum reports. After all the purpose of it all is communication, and there have been many occasions where a 3/2/9 report has meant more to me than other QSOs where I was 'given' 5/9/9 PLUS 40 dB. If you have exchanged calls, reports, and names you have certainly communicated, and there is much more virtue in having done it under difficult conditions. What do you think?

Keep communicating ES CUL

AR

EDUCATION NOTES

Brenda Edmunds VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

The suggestion has been made recently that a pass in the Novice Theory exam should be made a prerequisite for an attempt at the Full Theory exam. I can see some merit in the idea, but would be very interested to hear others' opinions.

Without delving too deeply into the statistics — some of which would be very hard to obtain and analyse — it appears to me that most candidates cope with the Novice course and exam quite well, and have few complaints about the system. Of course, some do have trouble and the pass rate does only average 40-50%, but the enthusiast who studies intelligently usually passes first or second time around.

Overall, the majority of those passing the Theory go on to attempt AOCP or AOLCP. This seems to be a much bigger hurdle. Pass rates for recent exams have been very low.

Why do so many candidates have so much trouble?

One factor is that there is very much more material in the Full syllabus than in the Novice.

An inspection of the syllabus in the Regs book shows the comparison:

	AOCP	NAOCP
Total Length	12½ pages	5½ pages
Basics	2 pages	½ page
Semiconductors	1⅛ pages	⅛ page
Power Supplies	1¼ pages	¼ page
Transmitters	2 pages	⅔ page

In part, the difference is due to more detailed specifications at the higher level, but close comparison shows that the actual material required for the Full is much more than twice that for the Novice, and includes many topics not mentioned at the lower level.

Most Novice courses run for about 7-9 months — so an AOCP course should run for about 18 months! It is unrealistic to expect this degree of dedication from either lecturers or students, so we compromise with a shorter, more intensive course.

Many who coped with the Novice course begin to flounder when the pace increases. Those who are struggling through on their own do not always read the syllabus closely enough to see the many points where new topics are included.

As for the exam itself — one hour for Novice, 1½ hours for Full, each fifty questions — either the questions for the Full must be harder, or there should be more of them.

How about a two hour exam of 100 questions to adequately test the more extensive syllabus?

Now, before you all start protesting — reconsider the previous proposal, which would allow the Full theory exam to concentrate on the 'extra' part of the syllabus, and cover it adequately in fifty questions. The only ones disadvantaged would be the few who, under the present system, go straight to AOCP theory without attempting Novice.

Another point is that the amount of knowledge required to keep up with the 'State of the Art' is increasing all the time, and very rapidly. What were new techniques when the syllabuses were put together are now commonplace and so fair game for exam questions.

Should the syllabuses now be redrawn to include digital, logic and microprocessors as they become commonplace too?

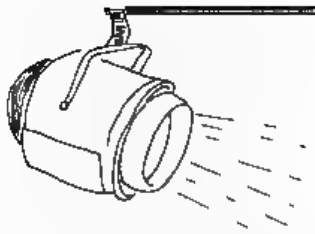
There doesn't seem to be much of the present syllabus that can be left out to make way for new material.

Where does it end?

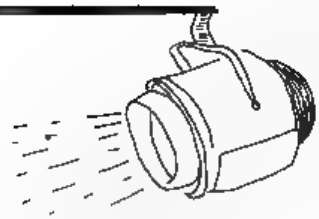
I would welcome comment on these or any other education issues. Write to me QTHR, or call in on the Education Net Wednesdays 1100 UTC 3.685± MHz.

73 Brenda VK3KT

AR



SPOTLIGHT ON SWLing



Robin Harwood VK7RH
5 Helen Street. Launceston, Tas., 7250

All of us have some time or other been plagued by interference from Over the Horizon Radar systems. These are commonly referred to as "woodpeckers" because of its similarity to the sound of that bird's tapping. Now a committee of the Association of North American Radio Clubs (ANARC) has published a bulletin specifically dealing with interference from these OTH-B systems. Its title is very apt — "Backscatter" — and has been edited by the Chairman of that committee Bob Horvitz. I am sure that there are many who would be interested in obtaining a copy of this occasional bulletin. It costs only 4 IRCs for an airmailed copy from:

Bob Horvitz
54 East Manning Street,
Providence RI 02906 USA

A lot of the information was yielded from the files of the US Federal Communications Commission, the American regulatory body under the Freedom of Information Act. There are over 900 pages on file and the cost of obtaining the data is $US90.00.

ANOTHER RARE ONE LOGGED

Recently I mentioned here that the Falkland Island Broadcasting Station is being heard here in SE Australia. Yet another difficult catch has been logged of late from the Shamrock Isle. Radio Dublin International on 6 910 MHz has been heard at about 0700 UTC. Technically this station is regarded as a pirate station. However, because a loophole in the Irish law re broadcasting was found, these unofficial stations have not been prosecuted. The State Radio — Radio Eirean — has enjoyed a monopoly ever since broadcasting commenced in Eire. But because these unofficial stations have proved more popular than the state network, the authorities haven't intervened.

Most of these unofficial stations have become even more open and commercial, mainly concentrating on MW and FM. As well the more prosperous stations are developing networks, by buying or absorbing the smaller outfits. In the early days of Irish "unofficial" radio a few enthusiasts commenced relaying their programmes on SW, particularly around the 49 metre band, a favourite haunt of unofficial or clandestine stations in Europe. But interest waned, as the AM stations became more commercial and aggressive. Radio Dublin international only re-commenced recently on SW. It is not surprising either that their signals were weak in this area, as reportedly they are only running 40 watts. This makes positive identification extremely difficult.

EXCEPTIONAL PROPAGATION

I find that when normally weak stations are clearly heard, that there is exceptional propagation present. For example, several low powered SW relays of the domestic Canadian networks have been heard here in Tasmania. They broadcast to the interior of Canada and are usually on the 49 metre band. They are very often not heard because of the presence of more powerful international broadcasters dominating the channels. Radio CKZN in St Johns, Newfoundland, was heard at around 1000 UTC and another station in Vancouver, CKZU, on the west coast, also part of the same network, was heard signing-off at 0900 UTC. Both stations use 6 160 MHz and broadcast in English.

Another good propagation indicator I have found, especially for Latin America, has been the Venezuelan Time station — YVTO in Caracas. It is heard from 0630 UTC and even as late as 0900 on 6.100 MHz. It runs only a kilowatt and has 100 millisecond pulses every second. Identification and local time are given every minute, naturally in Spanish.

SPANISH BULLETIN

Recently I was surprised to receive a letter from Francisco Martinez, who is General Secretary of the Central Spain Listening Group (GECE) in Madrid. He was kind enough to forward me a copy of their monthly bulletin "MADRDX". It is in Spanish, mainly concentrating on transmissions in that language.

One section of their bulletin contained the results of a contest to find the most popular Latin American broadcaster. Radio HCJB in Quito, Ecuador was voted number one quite convincingly with thirty votes. Presumably HCJB's local programming on SW has a wider audience than just in Ecuador itself. Most surprisingly, the runner up was Radio Mexico International with eighteen votes. This station is not heard that often here, in fact I have never heard it personally. It also is reported by ANARC to be a poor verifier. Other stations such as Radio Havana were well down the list with only eight votes. Radio Sutatenza even polled well. Those interested in a sample copy should send 7 IRCs to: GECE, Apartado Postal 4031, Madrid, Spain.

I have also heard from Eric Irvine of Thoona, Vic. He has an FRG 7700 receiver and a Collins R390. The latter has an IF fault at present. He is also an amateur — VK3BXA, mainly enjoying CW, but he occasionally comes on SSB. He hopes eventually to get into RTTY and SSTV and working through the amateur satellites. Thanks for your letter, Eric.

NEW ANTENNA

Recently, I tried out the FRA 7700 active antenna. As you have probably deduced it has been designed as a companion to Yaesu's FRG 7700 receiver. It connects to it by a din plug, as it requires 9-11 volts DC. However, I was able to use it satisfactorily with my, FRG 7, with an external 9V supply.

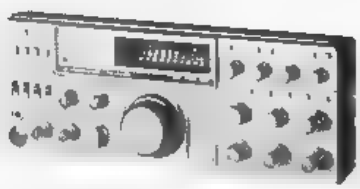
Active antennas are ideal for residents in apartments or units, where there are problems erecting outside antennas, replacing the need for their installation. The FRA 7700 performed surprising well with my FRG 7 and even on an old Philips 2262 receiver. It is good between 4 and 18 MHz and reasonable on MW. The unit also doubles as a pre-amp for longwire or especially MW loop antennas. It really improves the signals of weak broadcasts on MW and the tropical bands, but I found it very limited on SW because the powerful stations normally present a lot of splatter. All pre-amps have a big disadvantage in that they also bring up the noise, so they are best utilised where there is a low noise level. I believe that other brands of active antennas are available, also circuits and how to construct your own, using car aerial whips.

Don't forget that there is an amateur radio net devoted to SWL and DX-ing every Thursday evening at 1130 UTC. Net Control is shared between Don Rhodes VK3BMB, Tony Badgar VK2ECB, or myself VK7RH. We are on 3 565 MHz ± QRM and all are welcome.

Well, that is all for this month. Until July, the best of 73 and good listening — Robin VK7RH.

AR

Andrews Communications Systems



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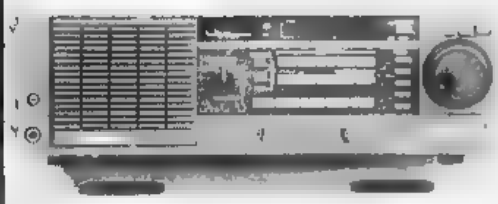

$619

VHF module fitted $769

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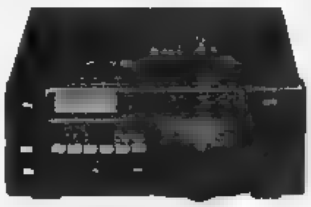

HF SSB/CW digital mobile

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FP-700 AC supply $195
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COMPARE FT-77 to TS-130SE and save!

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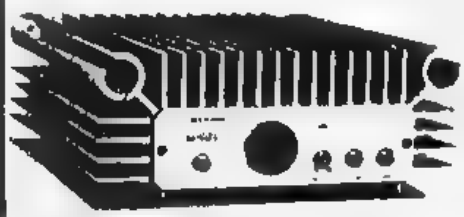

- HL-90U 10W-80W, GaAsFET, UHF Linear..... $369
- HL-86V 10W-80W, FET pre amp, 6m Linear $189
- HL-82V 10W-80W, FET pre-amp, 2m Linear.....$219
- ★ HL-160V 3W or 10W to 160W o/p, FET, 2m Linear $339
- HL-20U 2W-20W mini UHF Linear... $119
- ★ HL-45U 10W-45W, FET pre-amp, UHF Linear $219
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Top & bottom mast clamps included

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- ELH-230 ... . $79
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with receiver pre-amp fitted

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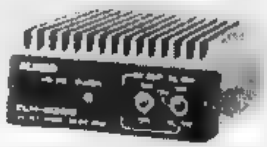

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- 3el 10 yagi 3.7m boom . . . $79, 4el 10 yagi 5.5m . . . $99
- 5el 10m 7.4m . . . $129 VHF & UHF beams available also
- RFA-LP log-periodic, 7el 7.4m boom, only . . . $279
- RFA-34B tribander, dual driven elements, 4el total, 5m boom, only . . . $300 RFA-34X 6el total on 8.5m boom only . . . $450 True bandpass triband yagis

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Scans & searches 60-90, 108-136, 140-180 and 380-520MHz in 2.5, 12.5, 2.5 and 25kHz steps respectively Genuine lockout, priority delay AM/FM AC/DC, up/down search, clock etc . . .

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NOVICE NOTES

Ron Cook VK3AFW
7 Dallas Avenue, Oakleigh, Vic 3166

A STICKY END FOR YOUR COAX?

Coaxial cable makes a very convenient feedline. If you purchase cable with a non-contaminating sheath intended for outdoor installation you can expect ten years trouble free operation, providing you can keep the rain out. If not your coax will come to a sticky end.

Before we get on to water-proofing let me exp a n briefly about sheaths

Very cheap coax has a very modest amount of braid and often seeks to redress the losses due to h gher RF resistance and rad ation leakage by using a reduced amount of dielectric, making up the bulk w th air bubbles Air is low-loss so this is fine The cable s then sheathed in a very nexpensive p astic such as PVC Over a period of time various chemicals are exuded from the sheath and some will corrode the braid A green sticky film forms which, of course, is very ossy Further, in sunlight, the PVC will ose its flexibility and eventua ly crack In goes the rain and, yes you guessed it, more sticky green corrosion

A good quality coax cable with a non-contaminating sheath does none of these things Another case of "what you pay for is what you get"

Now back to weather-proofing

Last year, I mentioned that most silicon sealants gave off acetic acid during curing and so were like y to corrode the copper wires they were supposed to protect Ron Higgenbothen, VK3RN, and several others have pointed out that the sealant I recommended is very hard to get

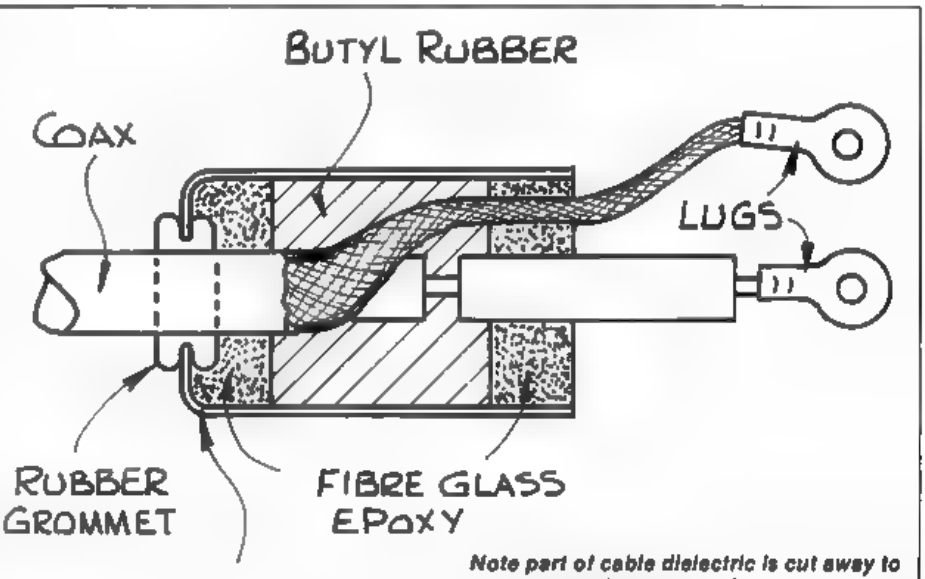
They have drawn my attention to Dow Corning Roof and Gutter Sealant 780 which is distributed by Selleys Chemical Co. It is available in 75 g tubes or 335 g cartridges It can be kept in the tube for twelve months and is guaranteed in service for twenty years

Dow Corning 1080 is, I am told, another possib lity Both are neutral curing silicone sealants. Local hardware stores with a Se eys Bar should carry stocks

If you intend to get twenty years use out of your coax then the deluxe potting method used by Ken VK3AH, will be of interest Fig 1 shows a section of the termination All the components and materials should be readi y available Most shops spec alising in photographic supplies and f lm printing will give you a bag of empty 35 mm fi m cann sters which are made of plastic

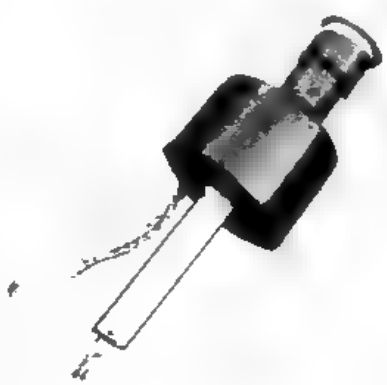
The photograph shows a completed termination Thank you Ken

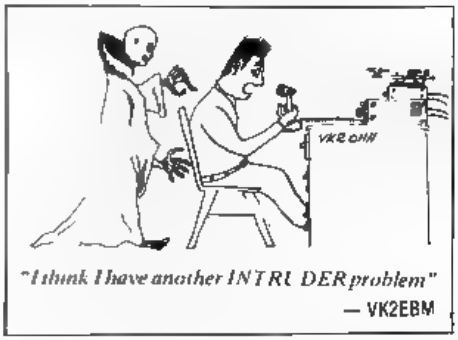
73 de VK3AFW



Note part of cable dielectric is cut away to seal off possible ingress of moisture along centre conductor.
Cannister may be cut down as whole length is not required.

Fig 1 — Section of Cable Termination.





"I think I have another INTRUDER problem"
— VK2EBM

AMSAT AUSTRALIA

Bob Arnold VK3ZBB
41 Grammar Street, Strathmore, Vic 3041

NATIONAL CO-ORDINATOR
Chas Robinson VK3ACR

COMMUNICATIONS NETS:

AMSAT Australia	*Control VK3ACR* *Sunday 1000 UTC* *3.680 MHz Winter* *7.064 MHz Summer*
AMSAT SW Pacific	*Control W6CG* *Saturday 2200 UTC* *28.880 MHz*
AMSAT Pacific	*Control JA1ANG* *Sunday 1100 UTC* *14.305 MHz*

***ACKNOWLEDGEMENTS* FOR INFORMATION**
Mode 'J' Newsletter
VK5AGR
Amateur Satellite Report
OST October 1981

FUTURE SATELLITES
SHUTTLE STS 9

It is becoming highly probable that Owen Garriott W5LFL will be the first amateur to operate from space. Only a final approval from European Space Agency (ESA) is required for Owen to carry a portable transceiver aboard STS 9.

JAMSAT 'JASI'

It is reported that the Japanese Space Agency has approved a proposal by JAMSAT to build and launch the first Japanese Amateur Satellite which will be known as 'JASI'.

Miki JR1SWB will be project manager. It is possible that a launch will be scheduled for 1986 and, although many points of detail have still to be decided the following broad outline has been proposed.

Orbit of the Oscar 7 type, sun synchronous with a period of about 103 minutes. Inclination 50° and height 1500 km. Transponder will include a Mode 'J' type, (2 m up, 70 cm down) and a Digital PACSAT type.

PHASE III B

At the time of writing the launch date of Phase III B is 3 June 1983.

For up to the minute details of the launch and direct broadcasts of the event please listen to the AMSAT Nets.

PACSAT

Activity is increasing in the field of development of a PACSAT-like satellite by AMSAT and possibly like interest groups. An inaugural meeting called the PACSAT Conceptional Design Meeting was held at Goddard Space Flight Centre, Greenbelt, Maryland on 25-27 February.

UOSAT SPACECRAFT CONTROL CENTRE
UNIVERSITY OF SURREY GUILDFORD SURREY ENGLAND
****

UOSAT SPACECRAFT OPERATIONAL STATUS
****
**** UOSAT BULLETIN-19 1200 GMT 30 MARCH 1983 ****

** S/C NEWS **
.FURTHER COMMAND STATION FACILITIES HAVE BEEN DEVELOPED TO SUPPORT ATTITUDE MANOEUVRES DESIGNED TO ATTEMPT TO FREE THE SNAGGED TIP-MASS MAGNETOMETER CABLES BASED ON THE RELATIONSHIP BETWEEN THE SCIENTIFIC AND NAVIGATION MAGNETOMETER DATA AND THE CHANGE IN DYNAMICS OF THE SPACECRAFT COMPOSITE DUE TO CURRENT BOOM DEPLOYMENT.

IT IS NOT KNOWN WHETHER IT WILL BE POSSIBLE TO CLEAR THE CABLE PROBLEM. HOWEVER, IF AFTER ALL ATTEMPTS HAVE BEEN MADE WE ARE UNSUCCESSFUL, ALL IS NOT LOST AS THE SPACECRAFT CAN BE EITHER SPIN STABILISED OR MAGNETICALLY STABILISED OR, POSSIBLY, QUASI-GRAVITY GRADIENT STABILISED USING CONTINUOUS ON-BOARD COMPUTER ATTITUDE CONTROL. IT WILL TAKE A NUMBER OF WEEKS TO EXHAUST ALL CABLE RECOVERY POSSIBILITIES.

** S/C ATTITUDE **

THE SPACECRAFT IS CURRENTLY SPIN STABILISED WITH A SPIN PERIOD OF 30 SECS.

** S/C OPERATIONS SCHEDULE **

WED 30 MARCH - MON 4 APRIL.....1200/SPEECH TELEMETRY/BULLETIN

TUES 5 APRIL - THU 7 APRIL.....300 BD ASCII / RTTY TELEMETRY

CURRENT OPERATIONAL CONDITIONS SHOULD INCREASE 145MHZ AVAILABILITY DURING WEEKDAYS. NEW SOFTWARE IS UNDER TEST WHICH WILL INCREASE THE RELIABILITY OF LOADING OF THE WEEKEND BULLETIN PROGRAMS. SUGGESTIONS FOR NEW PRESENTATION FORMATS FOR THESE WOULD BE WELCOME.

** THANKS FOR FEEDBACK **

K1KSY,B.LINDHOLM,WA2LQQ,W4RUZ,JR4GVA,WD4IXI,HB9RKR,HB9RJV,VE2QO

** POST BOX **

**K1KSY DE G3YJO...THANKS FOR DATA AND PLOTS RECEIVED, VERY GOOD.

**WA2LQQ DE G3YJO..DOES THE US NEED ANY MORE COPIES OF THE IERE UOSAT JOURNAL, G3AAJ COULD CARRY IN MAY.

```
*SPACECRAFT ORBITAL DATA*

ORBITS FOR 30TH MARCH

                UOSA.          OSCAR-8        NOAA-7
ORBIT NO :       8183          25821           9109
EQX TIME :    15:07:18       14:09:37       15:07:57      GMT
EQX LONG      359.0          169.4           10.7         DEG.W
MEAN HGT :     505.1          905.0          850.0         KM
PERIOD         94.7163514     103.1668742    101.9100825   MINS
P-DRAG        5.394E-05      2.166E-06      7.500E-06     *N-REF
LONG INC      23.6791479     25.7935558     25.4881782    DEGS
L-DRAG   :    1.357E-05      7.030E-07      2.000E-07     *N-REF

  QSL/POST CARDS CONFIRMING RECEPTION OF UOSAT DATA INCLUDING
  STATION DETAILS WOULD BE APPRECIATED FOR SURVEY OF NO. AND
  GEOGRAPHIC DISTRIBUTION OF ACTIVE STATIONS
  SEND TO  DR.M.N.SWEETING, UOSAT CONTROL CENTRE  -  THANK YOU
```

Printout by Graham VK5AGR.

The meeting was attended by a range of interested persons and group representatives Topics discussed ranged from highly techn cal PACSAT matters to launch possibil ties during the coming years

It s interesting to note that Paul Rinaldo W4RI, who will short y move to ARRL to head up ts technical departments, was in attendance. Paul is currently President of AMRAD the Amateur Radio Research and Development Corporation, and a long stand ng member of AMSAT. He has been actively involved n Amateur Packet Radio and wi l, without doubt, bring to ARRL and the amateur fratern ty in general an appreciation of digital technology It is nevitab e that th s mode of radio communication wi l come to the fore during the next decade just as SSB developed in the 50's and 60's

AMSAT GENERAL MANAGER

The Board of AMSAT has announced the appo ntment of William L Lazzaro N2CF to be its General Manager and Executive D rector N2CF has been icensed since 1964, holds an Extra ticket and has a Masters Degree n Science Education

Austral an Members of AMSAT wish Bill well n his new position

UOSAT TRANSMISSIONS

Many amateurs listen to the beacons of UOSAT 9 and to the fascinating digitalker but few are in a position to record and translate ts bulletin board which is frequent y sent n 1200 Baud ASCII

I am indebted to Graham VK5AGR for a neat printout of the UOSAT Bulletin for 30 March which uniquely included Easter Greetings

Th s printout may entice others who have computer printout facilities to enter the fasc nating wor d of digital communications

PACKET RADIO

Reference has been made recently, and in this issue, to Packet Radio and to PACSAT which s its satel ite application A

Easter greetings sent from Graham and reduced from original computer programme.

few words of explanation may be in order

Store and forward packet switching techniques were developed in the mid 1960s and the term 'packet' was introduced by the British National Physical Laboratory

A 'packet' is a group of ASCII characters (information) surrounded by control signals and error detection features The control signals help recognise the presence of a packet and tell any intervening switching equipment where the packet should be sent. The error detection feature will virtually guarantee that bad information will not be observed by the destination station

A packet is similar to a message format and the header and tailer components are designed to be read by computers which can be either a home computer programmed to perform the function or a dedicated micro computer board

Amateur Radio packet experimentat on has been pioneered n Canada and there are now many networks active n North America Following success with these terrestrial networks it is now highly probable that the techniques will be applied to future amateur satell tes

ORBITAL INFORMATION

For those enthus asts who are unab e to listen to the AMSAT nets or who would prefer hard copy information I am always pleased to supply sts of updated Kepler an Elements, Orbit Periods and Equator Crossing data for prescribed satel ites

All I ask is for a supply of SASE s and details of your requirement, e wh ch satellites, type of information required and the frequency of dispatch, i e week y, b - monthly, monthly etc and I wil do my best to keep you up to date

MURPHY STRIKES

In the April issue two photographs appearing on pages 13 and 14 were incorrectly credited to Mike Thorne VK3BKK

Whilst Mike supplied the pr nts, the photographs were actually taken by Barry Wilton VK3YXX

The error is regretted

Gil Sones — Editor

NATIONAL EMC ADVISORY SERVICE

Tony Tregale VK3QQ
FEDERAL EMC CO-ORDINATOR
38 Wattle Drive, Watsonia, Vic 3087

"NO WORRIES?"

The review of the Radiocommunications Bill made this year's Federal Convention one of the most important for the Institute. With the convention over and our submission to the Bill completed, the temptation is to relax for another year.

If we are to provide the maximum protection for our service the "no-worries" attitude must be pushed well into the background

The battle has only just started!

Even if we do get all that we have asked for and all that we have recommended in our submission there is still a long way to go before these recommendations can be implemented or, we are able to see a light at the end of the tunnel

When the Bill eventually becomes an Act the associated regulations and standards will have to be drawn-up If these regulations and standards are not favourable to the Amateur Service then we will have lost the battle

The CASPAR Committee will be monitoring all the various aspects of the Bill/Act, the Reguations and the Standards, and together with the Federal Executive will try to ensure that the Amateur Service gets the best possible deal However because of the very detailed and complex nature of legislation, regulations, and standards we must call on the assistance of all members of the Amateur Service to provide an on-going monitor of the overal situation and provide an input to the CASPAR Committee With this most important milestone for amateur radio it is not good enough to just leave it to the other guy

Throughout the discussions about the Radiocommunications Bill, and other submissions recently, it became abundantly obvious that in order for the Amateur Service to secure the best possible deal in this very competitive world it is most advantageous for the Service as a whole to be able to say that our members are technically qualified responsible people

Those amongst us who are constantly advocating for lower standards and the elimination of this or that from the exam nations are doing our Service untold harm in the long term It is simple logic that if one is seeking employment, a company is more likely to give the position to the most qualified person

Any reduction in the technical standards necessary to obtain an Amateur Radio Licence can only serve to severely limit the power of the Amateur Service when negotiating for terms or extra privileges.

The fact that we are technically qualified (at a reasonable standard) and responsible people can open many, otherwise closed, doors. Also, these standards provide us with a good platform in relation to our position within radiocommunication legislation, and within the society of electromagnetic spectrum users

The National EMC Advisory Service is especially concerned in regard to areas which produce major difficulties and quite often leave members of the Amateur Radio Service with very little chance of a final effective solution. These are, IMMUNITY/SUSCEPTIBILITY of domestic entertainment equipment and consumer products and, INCIDENTAL RADIATION from these and other devices

These are the areas which need to be given top priority by all those concerned with the control of legislation, regulations, and standards. We need firm effective control based on international standards, legislation, and experience . . . not a wishy washy — "*no worries mate, she'll be right*" attitude

Members of the Amateur Radio Service have always been very conscious of the need for high quality transmission and reception of electromagnetic energy in all forms using, modern technology, know-how, dedication and responsibility This is reflected in many ways, one is the fact that the Amateur Service is self monitoring and very conscious of the finite and very vulnerable electromagnetic spectrum

This is in contrast to manufacturers and importers of domestic entertainment equipment and consumer products where the object is to produce or import a product as cheaply as possible, or ensure a large turnover with as much profit as possible with little regard as to how it will operate when in close proximity to other equipment. And of course, definitely no concern for the finite electromagnetic spectrum.

The latest device to give major concern to the Amateur Radio Service is the VIDEORECORDER which is proliferating at an incredible rate In most cases these devices require only a "*sniff*" of electromagnetic energy in order to send them "*beserkefied*" Today it's videorecorders:

"What will it be tomorrow?"

Co-operation by manufacturers and import agents in regard to the EMC problem is, in the main, very poor However, there are a few exceptions The following letter from a NSW amateur is an example of co-operation by an Australian manufacturer/agent

The case involved an Arlec AM469 intruder alarm The writer explains

"The AM469 is located on the opposite side of the street, about 50 metres from my TH3MK3 The AM469 uses ultrasonic doppler technique for detection of movement in the house

'As my neighbour spends most weekends away from home I am hesitant to use my radio equipment over this period for fear of setting off the alarm.

"Basic checks indicate that if I use only the TS820 there is no problem: However, using the FL2100 at 400 watts instantly triggers the alarm. Further checks indicate that I can use 400 watts with RTTY but not SSB "

After consultation with our special devices advisor, and A & R Electronics of Box Hill, Victoria who were most co-operative and helpful, the amateur was advised to try a number of ideas including shielding and earthing.

After further investigations —

"My neighbour has tried many of the ideas suggested, however, the final answer was to completely shield and earth the unit. I can now run 400 watts any mode and there is no alarm problem

"I am surprised that these AM469 units are not totally shielded in the first place, complete with an earthing terminal. Surely the manufacturers cannot claim this would involve expense, because the top and bottom plates are made of wood with a decorative strip around the edge making it look like aluminium An aluminium case would probably cost less, and be much more effective for EMC '

The National EMC Advisory Service is most appreciative of the valuable assistance given by A & R Electronics

The following letter from a Victorian amateur is an example of an unusual interference problem

"The following experience is with a Heathkit Electronic Digital clock model GC-1005, a six digit type which I built some years ago. It ran perfectly for a long time

"However, about two years ago it started to lose time at a random rate, sometimes up to 50 secs per week, other times 14 secs —nothing exact, always random One could of course suspect a power failure, however these clocks go into a holding pattern when a power failure occurs

I checked the clock for intermittent problems changed ICs, all to no avail Then one day I noticed intermittent flicker of an incandescent lamp I was using to do some fine work Thinking about this later it seemed that if there was a flicker in the lamp then there must be a period of no power This would mean that in say 1 second there could be 30 Hz (effective) or less The clock electronics would count this as such and the display would be in error

'As we have two phases supplying the house I was able to ascertain that the problem was associated with only one of the phases. I suspect the problem to be a large factory nearby which uses a very large welding plant

'I am pleased to say the problem was cured by fitting a Clipsal 423, 3 pin Static Suppressor Plug to the clock.'

An effect which came to our notice recently, and could be considered ultimate EMI problem was that of EMP (electromagnetic pulse) Not your regular EMP but the 'big daddy" of EMP I refer to EMP produced by an atom c explosion

The reports refer to two major effects, one s the effect of an EMP produced by an atomic exp osion n space If the explosion s near to the sate lite belt, the electronic systems of a number of sate.lites can be destroyed by the mass ve electromagnetic pulse of energy, unless of course the sate lite's electronic systems are hardened against this effect.

The second effect is perhaps a little closer to home; that of a high level atomic explosion which if correctly positioned over an Earth target, could destroy all e ectron c control and communications systems (not hardened), without physical damage to the target

Most of our modern day communications and control systems employ complex solid state dev ces These devices are very vulnerab e to EMP (and ESD) This is one reason why some mil tary equipment is be ng reverted to therm on c valves

There are many mundane adverse, but interest ng, effects of EMP (and ESD) which we wi cover on another occasion

AR

UPDATE ON STOLEN EQUIPMENT

The May issue of Amateur Radio carried a report of the loss of several items of equipment by GFS Electronics.

Some of the items have been recovered by the Victoria Police

Police investigations are continuing.

AR

FORWARD BIAS

VK1 DIVISION

John MacPhee VK1NEN
VK1 PUBLIC RELATIONS OFFICER
36 Kavel Street, Torrens, ACT, 2607

At the AGM a new committee was elected. The newly elected committee and their official positions are as follows

VK1KAL Alan Hawes
President, Broadcast Manager and Public Officer

VK1MM Fred Roberston-Mudie
Federal Councillor, Intruder Watch Co-Ordinator and QSL and DRI Liaison

VK1IC Ian Coleman
Alternate Federal Councillor and Education Co-Ordinator

VK1UE Richard Jenkins
Secretary

VK1OK Kevin Olds
Treasurer and ATV and WICEN Liaison

VK1NEB Gavan Berger
Property Officer and Awards Manager

VK1EP Eric Piraner
Repeater and Beacon Liaison and Book Sales

VK1ZBC Murray McInerney
Meeting Manager

VK1NEN John MacPhee
Public Relations Officer and Forward Bias Editor

Other non-committee members have the following positions.

VK1RH Ron Henderson
Divisional Historian

VK1MF Mori Foster
Inwards QSL Manager

VK1AOP Ted Pearce
Outwards QSL Manager

VK1DS Peter Smith
Head of Repeater Sub-Committee

VK1MX Bill Maxwell
Head of ATV Sub-Committee

VK1KRA Rod Apathy
WICEN Co-Ordinator

VKs 1MX and 1RH were presented with "Certificates of Achievement" in recognition for their services to the Committee over the years. A job well done, thanks!

The VK1 Division set up a demonstration station at the Belconnen Mall Shopping Complex on ITU day as part of their PR programme. Considerable interest was shown by the public.

The display included operating stations and static displays. Operators were kept busy with enquiries about amateur radio. The display was again a huge success.

MEETING AGENDA

27 June Studio Room
25 July Studio Room
22 August Room 1
26 September Room 1
24 October Studio Room
28 November Studio Room

Meetings are held at the Griffen Centre, Civic and all visitors are welcome to attend.

73 John MacPhee VK1NEN
Editor

RD WINNER

Jenny, VK5ANW accepts the RD award, on behalf of VK5, from Bruce VK3UV, Federal President, at the Federal Convention held in Melbourne during ANZAC weekend.

FIVE-EIGHTH WAVE

Jennifer Warrington VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

As I write this half my mind is on the Federal Convention which takes place this coming weekend. As ever I am aware of the responsibility of the position but having been well briefed by council as to their feelings on many subjects that will be raised, should make things easier.

Our 'Team' this year consists of myself as Federal Councillor, David Clegg VK5AMK as First Alternate Councillor and Graham Ratcliff VK5AGR as Second Alternate or Observer. This year we shall be driving over by car which will be a new experience for me. Perhaps it's just as well that we all get on well together or they might threaten to leave me in VK3! If all goes according to plan we shall be arriving back on the Tuesday, with only a few hours to spare before the Divisional AGM (forgive us if we weren't looking too bright!) Unfortunately there will not be a ballot, as only the bare minimum of nominations were received. Although this is a little premature, I would like to welcome the two new members who did nominate for council. Roland Bruce VK5OU, and John Gardiner VK5PJG and hope that you enjoy your time on council as most members find they do. Two members who have spent many years on council and despite the enjoyment they confess they have had, have decided that it is time to give someone else 'a go'. I am referring to Maurie VK5ZU, and John VK5NX both of whom have been tireless workers for the Division, and both of whom will be missed on council. However, both have assured us that although they are no longer council members, they still intend to continue in other areas when required.

By the time you read this 17th May will be long passed, and hopefully the planned AR station set up in the main hall of the GPO for that and the following three days will have been a huge success. The credit for the idea must go to David VK5AMK, who thought that as we had the AX5ITU callsign for World Communications Day, it seemed a shame not to get some 'PR mileage' out of it. As it turned out, the man in charge of setting up a display for WC Day in the GPO (they have a 27¢ stamp and a first-day cover being released) was wondering what he could use! Hopefully as well as just being seen by the public, we may get some Media coverage as well.

Full Convention report in July

VK2 MINI BULLETIN

Jeff Pages, VK2BYY
VK2 Mini Bulletin Editor
PO Box 1066, Parramatta NSW, 2150

COUNCIL REPORT

The 1983-84 Divisional Council met for the first time on the 8th April. Tom Delandre VK2PDT was appointed to fill the casual vacancy on Council caused by the shortfall in nom nations. The office bearers for the ensuing year were elected as follows

President: Sue Brown VK2BSB
Vice Presidents: Jeff Pages VK2BYY and Tim Mills VK2ZTM
Secretary: David Walters VK2AYO
Treasurer: David Thompson VK2BDT assisted by Sue Brown VK2BSB
Affiliated Clubs Officer: Jeff Pages VK2BYY
Education Service Liaison: Bob Clark VK2YOD
WICEN Liaison: Peter Jeremy VK2PJ
Repeater Committee Chairman: Tim Mills VK2ZTM
QSL Bureau Liaison: Tom Delandre VK2PDT
Publications Officer: Sue Brown VK2BSB
Dural Property Officer: Jeff Pages VK2BYY
Parramatta Property Officer: Tom Delandre VK2PDT
Broadcast Officer: Peter Jeremy VK2PJ
Minibulletin Editor: Jeff Pages VK2BYY
JOTA Officer: Tom Delandre VK2PDT
"AR" Publicity Officer: Tom Delandre VK2PDT
Components Officer: Bob Clark VK2YOD
WCY '83 Publicity: Sue Brown VK2BSB
Library Officer: Aub Topp VK2AXT
Correspondence Course Supervisor: Cec Bardwell VK2IR
Intruder Watch Co-ordinator: Bill Martin VK2EBM
Co-ordinators for the Disabled: Fred Greening VK2DZL and Jim Saunders VK2BNY
Slow Morse Supervisor: Ross Wilson VK2BRC
Contest Publicity Officer: George Trotter VK2AVY
Honorary Solicitor: Fred Herron VK2BHE

Ken Hargreaves VK2AKH was reappointed as Education Service State Supervisor.

David MacKay VK2ZMZ, Eric Van de Weyer VK2KUR, Syd Griffith VK2AHF, Ian Nance VK2BIN, Alan Boxsell VK2YEQ, Tim Mills VK2ZTM, Fred Parker VK2ZBK/NFF and Brian Warren VK2BX were appointed to the WICEN Committee.

Jeff Pages VK2BYY, Peter Jeremy VK2PJ, Roger Henley VK2ZIG, Colin MacKinnon VK2DYM, John Marshall VK2EGI and David Walters VK2AYO were appointed to the Dural Committee.

Paul Smith VK2ZSA, Henry Lundell VK2ZHE and Max Bowey VK2ZQA were appointed to the Repeater Committee. Additional volunteers are required for this committee, which is responsible for co-ordinating repeater allocations in this state.

Twelve new membership applications for April were accepted.

Council wishes to borrow an electric Gestetner duplicator for use in reprinting the Correspondence Course notes. If you can assist please contact the Divisional Office.

A group of clerical staff from the Department of Communications visited the Dural station to view the facilities, and also delivered the new beacon and repeater licences. Under the new licences, the beacons now identify as VK2RSY and the 2 metre and 70 centimetre repeaters now both have the callsign VK2RWI. The 70 centimetre beacon is now on air on 432.420 MHz, running 15 watts to an omnidirectional horizontally polarised antenna.

Council records its sincere thanks to Frank VK2KFB and Paul VK2ZSA for their donations of output transistors for the Dural 2 metre repeater and 70 centimetre beacon respectively.

8th CONFERENCE OF CLUBS

The 8th Conference of Clubs was held at the divisional headquarters in Parramatta on the 17th April, hosted by the St George Amateur Radio Society. The chairman was Jim Button VK2NPO, and Derick Sellars VK2AZS was elected as Secretary. The Central Coast, Westlakes, Liverpool, Goulburn, St George, Castle Hill RSL, Mid South Coast, Hornsby and Wagga clubs were respesented. The following motions were passed by the Conference.

"That liaison between the VK2 Repeater Committee and Repeater Committees in adjoining call areas be improved, especially with regard to frequency allocations."

"That the WIA NSW Division, through the Federal WIA, contact the Minister for Communications to protest at the lack of action by DOC against continued obscene broadcasts on the amateur frequencies and in particular the Sydney 2 metre repeaters."

"That the WIA NSW Division, through the Federal WIA, write to the Minister for Communications requesting the early removal of channel 0 from the international 6 metre amateur band, as promised by the previous government."

"That the 8th Conference of Clubs approve of a slow Morse beacon on HF or MF."

"That Federal Executive and the VK2 Division consider adopting a Bankcard system for payment of subscriptions, books, etc."

"To ask Ferderal Executive of WIA to continue pressure during discussions with the Minister of DOC to standardise our frequencies available, to those of other countries within our region who have greater bandwidths available."

"That WIA request DOC to conduct CW upgrading exams for full-licenced amateurs to sit for to have their licence endorsed to be compatible with overseas amateurs for the purpose of the issue of a reciprocal licence when visiting those countries whose Morse speed test is higher than 10 WPM."

Councillor Peter Jeremy presented a report on the Queensland Radio Clubs Workshop, and as a result it was resolved that this 8th Conference of Clubs strongly recommend to the VK2 Council that the VK2 Conference of Clubs prior to the Federal Convention be a two day conference, and that council consider appropriate reimbursement to the delegates.

Under general business, the agenda items for the 1983 Federal Convention were discussed for the guidance of Federal Councillor Stephen Pall and Alternate Councillors Wal y Watkins and Tim Mills.

It was resolved that the next Conference of Clubs be hosted by the Central Coast

Delegates and observers at the 8th Conference of Clubs.

Amateur Radio Club, with the tentative date being the 6th November.

Ian Jeffrey accepts award on behalf of Goulburn ARS for highest percentage increase in WIA membership from Divisional President Susan Brown.

FIREWORKS DISPLAY

The Dural Fireworks Display takes place on Saturday the 4th June at VK2WI, 63 Quarry Road Dural. The barbecue dinner commences at 6PM, with the fireworks kicking off at 8PM. Those attending the dinner should have purchased their tickets by now, however fireworks-only tickets will be available at the gate at $3 for adults, $2.50 for children or $11 for a family consisting of two adults and their children. Approximately $500 worth of fireworks will be set off in what promises to be a most spectacular display.

NSW members and clubs are invited to submit news items for inclusion in these notes to WIA NSW Division, PO Box 1066, Parramatta, NSW, 2150 and mark items "For Mini Bulletin". Items for August AR must be received by the 22nd June.

Jeff VK2BYY

VK4 WIA NOTES

The Radio Club Workshop, 1983, was held at Griffith University, Brisbane, on the weekend of 9/10th of April. No less than twenty Queensland clubs were represented. Generally there were about forty amateurs present listening to and taking part in the proceedings. As well as club delegates, several members of the Queensland Division Council and our Federal Councillors were present. The workshop is held to keep council in close touch with state members and to brief our Federal Councillors in preparation for the Federal Convention.

Guests at the workshop were Peter Jeremy, VK2PJ, VK2 councillor; Sam Voron, VK2BVS, Mr Kevin White, State Director of SES and Mr Boyd Rayment of DOC. Peter Jeremy was there as an observer for the VK2 council as VK2 had expressed an interest in our Radio Club Workshop. Sam Voron spoke on traffic nets and was very well received. Sam's talk was very informative and quelled a lot of fears held by some in the audience. Both Mr White's and Mr Rayment's contributions were received with great interest and many questions.

All who attended went back to report to their clubs that the weekend was very worthwhile and worth every cent of members' money. The Queensland Division pays for air fares for one delegate from each club so it is a costly affair. Remember that Queensland is a very big state. Cairns being as far away as Melbourne from Brisbane. It was unfortunate that inconvenient airline schedules stopped the Mt Isa Club coming.

Club motions on a wide variety of subjects were discussed, many of Queensland interest but some of interest Australia wide. These included discussion on RTTY calling frequencies, contests and upgrading the AOCP Morse speed requirement.

The workshop proposed that RTTY calling frequencies be adopted as follows.

3.520 ± 5 kHz
7.045 ± 5 kHz
10.145 ± 5 kHz
14.090 + 5 kHz
18.105 + 5 kHz
21.090 + 5 kHz
24.925 ± 5 kHz
28.090 + 5 kHz
28.620 + 5 kHz

Contests were the subject of much debate, particularly in regard to taking up whole bands for many weekends throughout the year. The workshop came out strongly to have contests confined to band segments and that the WIA negotiate with other national societies to achieve this aim. There are already kindred thoughts being expressed in many parts of the world, Region 1 being a leader.

Due to difficulties experienced by Australian amateurs who have AOCP Morse qualification at 10 WPM in obtaining full privilege licences when overseas, it has been proposed in several quarters that the standard requirement be raised to 12 WPM. Several points came out of the discussion. Not many of the out of the total number of Australian amateurs go overseas to operate a station, DOC will conduct Morse tests at higher speeds and furnish documentary evidence of a pass, and a most interesting question, if the speed for AOCP qualification is raised, will all AOCP holders with 10 WPM endorsements be required to pass at the new higher speed?

In previous workshops, delegates have formulated policy statements, some of which have been adopted as is or in modified form by the Federal Council. RTTY is gaining many supporters. Here is the policy statement prepared at the workshop on this mode which could receive federal endorsement.

Policy statement on RTTY — FUTURE DEVELOPMENTS

Bud, VK4QY

VK3 WIA NOTES

FOR SALE TO VK3 MEMBERS

An ICOM 720A HF Transceiver and matching ICOM PS15 Power Supply

This equipment was purchased by the VK3 Division and loaned to the VK6 DX Chasers Group to use during the recent very successful DX-pedition to Heard Island

It is in mint condition and perfect working order. As it was never our intention to make a profit on this arrangement, merely to cover costs, applications to purchase the equipment for $1085 may be sent to

The Treasurer,
WIA Victorian Division,
412 Brunswick Street
Fitzroy, Vic 3065

before 8th June 1983

If necessary a ballot will be held during the June General Meeting

VK0HI and VK0CW

QSLs for VK3 amateurs who QSLed direct to VK6NE including a self-addressed envelope but with **NO RETURN POSTAGE** will be bulk mailed to the VK3 office at 412 Brunswick Street, Fitzroy, Vic. 3065 and will be held for one year for collection

Personally I think it is most unreasonable to expect ANY EXPEDITION to pay for return postage on top of the cost of the card

HOW ABOUT IT FELLAS — DO THE RIGHT THING!!

73 Des Clark VK3DES
TREASURER VK3 DIVISION

A state Victorian Parliamentary Committee is inquiring into the environmental impact of larger radio masts in residential areas and has to report to Parliament by 30 June, 1983

The National Resources and Environment Committee is particularly interested in whether the degree of environmental impact significance justifies municipal control over the appearance of such masts, and invited submissions from persons or organisations and set a deadline of 31 March

The WIA Victorian Division submission was hand delivered to Parliament House Melbourne on 31 March — it contained about 4000 words and took roughly 100 manhours to produce

The VK3 Taskforce on Radio Masts, Alan Noble VK3BBM and Jim Linton VK3PC, was expanded to include the VK3 Divisional Secretary Ian Palmer VK3YIP

For more than two years the taskforce of Alan and Jim had been involved in making representations and attending conferences to put the view of the WIA concerning radio masts

They were successful in impeding the progress of an amendment to the Melbourne Metropolitan Planning Scheme in 1981 which would have resulted in a planning permit being required for radio masts together with antennae that

(a) exceed a height of eight metres above the ground,
(b) when attached to a building exceed a height of three metres above the roof line, or
(c) have any horizontal dimensions in excess of three metres.

The then Liberal Minister for Planning was informed that such restrictive planning requirements were unjust and unworkable.

It is perhaps appropriate to mention that a planning permit for radio masts in residential areas — as used by radio amateurs — is not required

However a building permit should be sought when the mast exceeds a height of eight metres above the ground, or when attached to a building exceeds a height of three metres above the roof line

Under the Uniform Building Regulations the municipal council or shire has discretionary powers to refuse a permit and the applicant then has a right of appeal. At such appeal hearings the decision has traditionally been in favour of the radio amateur

The Town Planning Appeals Tribunal has held that a resident has a right to do those things which accompany normal domestic living including the performance of a hobby. It has taken the view that a planning permit is not required for erection of radio masts used for domestic or hobby purposes. This historical fact has been highlighted in the WIA submission to the Parliamentary Inquiry

In addition to the Taskforce on Radio Masts, a number of others provided assistance in compiling the submission. These included Michael Owen VK3KI on legal aspects, Jack O'Shannassy VK3SP with technical advice and Mike Provis VK3KKA assisted in a journalistic capacity

AMATEUR OCCUPATIONS

Ken Palliser VK3GJ and John Hutchinson VK3JH provided a computer print out giving a breakdown of the various occupations held by radio amateurs and the percentage who are retired persons

This was valuable in explaining the nature of amateur radio and dispelling any misconceptions that radio amateurs are all "boffins" or something worse — "ratbags"

The submission went through five draft stages using a professional typing service with a word processor. It was estimated that a similar submission compiled totally by an outside firm which specialises in similar government submissions would have cost around $10,000

The WIA Victorian Division has indeed been fortunate in being able to draw on the resources and expertise of individual members of the amateur radio fraternity

In addition to the main submission the Victorian Division circulated a form letter with eight key points and these were signed by individual radio amateurs and sent to the inquiry

The WIA Victorian Division has opposed planning controls for modern design masts used by radio amateurs which do not exceed a height of twenty metres

It is hoped this inquiry will resolve the issue of radio masts which has been a source of concern in Victoria since the late 1960s

SURVEY OF BACKGROUNDS OF RADIO AMATEURS

Computer extract from membership records of 473 people, most living in the Melbourne metropolitan area, who are actively involved in amateur radio

PROFILE OF OCCUPATIONS

Academic 9	1.9%
Business Administration 32	6.8%
Communications and Electronics 50	10.6%
Data and Computers 11	2.3%
Engineering 34	7.2%
Finance and Accounting 10	2.1%
Technical Sales 5	1.1%
Electrical Trade 11	2.3%
Telecom 20	4.2%
Medical 13	2.8%
Transport Industry 23	4.9%
Manufacturing 15	3.2%
Building and Allied 13	2.8%
Public Service 21	4.4%
Retired 57	12.1%
Teaching 26	5.5%
Student 32	6.8%
Television Industry 6	1.3%
Miscellaneous or not stated 75	15.9%

Jim Linton VK3PC

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

HIGHER STANDARDS

58 Bainton Cres
Melba, ACT 2615

As a relative newcomer to the realm of amateur radio I am impressed by the general level of professionalism of amateurs in their approach to the hobby However there are two aspects with which I am disappointed and with which I would encourage a re-assessment These are in respect of the units of measurement and phonetics

Australia has been formally albeit not entirely converted to metric units, a desirable adoption in a world generally using a decimal base for measurement and currency However it seems incongruous to maintain the use of feet and inches, on the air or in correspondence in respect to radio communication Since wave lengths are universally measured in metres or centimetres and as it has a direct affect on antenna design and structure, the use of imperial units can only be described as a complicating factor For example to detail the antenna height or its elements in terms of feet and inches means little in terms of frequency unless it is first converted to metres — so why use it? Accordingly I believe we should make a concerted effort however awkward it may be for some to take a professional approach and get with the times

Secondly we hear a considerable variation in phonetic spelling using local and non standard terms such as "Mexico" or "Mary" in place of "Mike" for the letter M It may suit or please the Americans or the Mexicans but it is not the agreed international form upon which current amateur aspirants are examined The current choice of words may not seem optimal, but let us use appropriate forums for changing the phonetics and not drift to other forms according to whim

Again perhaps only minor issues but let us make the effort and maintain our otherwise high standard

Yours faithfully
Ron Van Santen VK1VS

AR

ADVERTISEMENTS

Editor's Note:

A letter from Rex Black VK2YA was also received by the Federal Secretary on this topic.

Editor's note: A letter from Rex Black VK2YA was also received by the Federal Secretary on this topic.

Old Coonara Rd
Olinda Vic 3788
6/3/83

I read with interest, your QSP remarks in March '83 AR calling for us to protect our privileges by responsible "self policing" of the regulations

I was somewhat bemused then to see the same magazine advertising via its Emtronics Catalogue insert such items as speech scramblers, amateur and CB linear amplifiers for up to 2 kW output a transceiver with continuous transmit coverage from 1.8 30 MHz etc

Perhaps I am naive, but it seems to me to be utterly inappropriate for us, as an institute, to allow the pages of our official journal to carry implicit or explicit encouragement of readers to contravene either amateur or CB regulations

If we do not have advertising or editorial policies covering such matters, I suggest that we should develop them as a matter of some priority

In other respects, may I commend you on the quality of the magazine in general

Could you consider, however, returning to the practice of using the same cover colour for a whole year I found that this made information retrieval from large files of back issues very much easier then the present colour policy allows.

Yours faithfully,
Norm Melford VK3ZTN

AR

30 Brennan Pde,
Strathpine Qld 4500

I have noted over the years the appeals by your magazine to patronise your advertisers It also has been your policy to promote legal operations from licensed stations So it struck me to be very unusual to read on page 12 of the Emtronics catalogue inserted in your March issue. The advertisement is for a linear amplifier for UHF hand-held CB The output of this amplifier is 20 W yet the legal limit is only 5 W So therefore this equipment is illegal. I realise that the advertiser is at fault here as it is his duty to stay within the law I believe that the government should ban the imports of illegal equipment and also outlaw the sale of it I also believe that legal equipment should only be able to be purchased by a licensed operator, and proof of this should be shown before any sale takes place I would like to see the WIA push for this and would also like to hear your comments and the comments of your readers

Yours sincerely,
Bernie McIvor VK4KSB

AR

Points raised have been noted and the matter has been raised with the advertiser — Ed

INTRUDER WATCH

Bravo to Bill Martin for his spirited defence of Intruder Watch (AR, March 1983) However, I feel he has over-reacted somewhat, because my letter was not an attack upon Intruder Watch — a necessary and admirable service — and certainly not upon Mr Martin who is doing an excellent job and, as he says, voluntarily My letter was concerned with encouraging people to help, rather than putting them off Let us take a couple of examples

The Intruder Watch segment in February AR, written half humorously I am sure, nevertheless manages to imply that, while VK1, 2, 3 and 4 are doing a fair job of reporting, VK5, 6, 7 and 8 don't give a damn and, presumably, should be ashamed

In mid-February, the local Sunday morning WIA news bulletin gave details of the number of reports and reporters during 1982, and ended by saying that "not one" of those reports came from Western Australia I telephoned the broadcast officer about this astonishing statement and he told me that it had come from "federal sources" This conscientious man then enquired into the facts and subsequently broadcast a retraction. If one wants to destroy enthusiasm, this is the right way to go about it.

The fact is that, frustrating as it may be to those who are doing more than their fair share (and as one who has been a club secretary, I sympathise), a man is entitled to be apathetic if he wants to be

Let me say at this point, that I have been in direct correspondence with Mr Martin and received a courteous and helpful reply enclosing much information which I had never seen before, some of which is contained in the useful Intruder Watch column in the March issue of AR

I am sure he will be pleased to know that I am already sending in reports once more and join with him in urging others to do likewise — not because it is expected of them, but because it is an interesting pastime and a way of fighting back

With best wishes,
Jeff Jeffrey VK6AJ
129 Coode Street
South Perth, WA, 6151

For the benefit of any readers who may have been following the public correspondence between Mr Jeffrey, VK6AJ, and myself, may I say that Jeff and I have been in regular correspondence, and we are getting along famously

We are both equally interested in the Intruder Watch, and are both trying to do our little bit to further the aims of the Intruder Watch in Australia.

Bill Martin VK2EBM
FEDERAL IW CO-ORDINATOR

AR

NOT IN THE CALLBOOK

A number of amateurs seem to think that just because your callsign is not in the callbook, you are a "Pirate", or in some fashion, illegitimate I have been questioned aggressively twice abused and have had carriers dropped on me, and suffered various other discourtesies, such as being talked about on 2 metres after being on the HF bands by parties who for whatever reason, fail to understand that all entries in the callbook are collated some time before the date of printing Hence, those people like myself, who passed the Novice exam in May 1982, and passed the Full exam in August 1982, and did not apply for a station license until September 1982 may not be in the callbook especially if the editors of the callbook had not received this information on the deadline

I would hope that this is the case and not a case of petty jealousy To my thinking the amateur exam is indeed an easy matter because of my background Being a professional electrical engineer in the communications area, the theory is a matter which I should know Learning the regulations is OK I also keep a copy of the Regs and the Act with me, which one can purchase for about $3 as well as the AD Handbook

Learning CW is easy for those people with a musical background, I have discovered Making a dit equal to a semi-quaver, and writing out the text in the Handbook for 10 WPM receive one finds that the speed is about that of allegretto Those CW fiends that can handle 60 WPM are the real performers as are symphonists who can play hemi-demi-semi-quavers 'Prestissimo (hi)

I always call "is this frequency in use" before going full-bore into a CQ, or whatever, and also I tune up by listening carefully to a weak station, or noise to get the ATU set up properly, if it isn't already recorded in my note-book For coaching in operating procedure, and assistance in learning code, I extend my thanks to two friends who introduced me to amateur radio as a worthwhile hobby Roy AA6W and Neil VE4DQ Both of them helped me learn code before I returned to Australia. I am now engaged in helping others to learn code

On the debate over the difficulty of the AOCP etc I feel that it is a little too easy The present Novice license should restrict one to CW only on the present Novice allocation With the present AOCP test, that should entitle one to what is presently enjoyed by Novices, plus, perhaps, 144 to 145 MHz A more difficult exam in theory without code would entitle one access to the remaining VHF and UHF

and higher spectra. and an ability at 15 WPM plus pass ng the more difficult theory mentioned above. entitles one to the remainder of the HF Band The bands are gett ng crowded

I have enclosed copies of my certificates for the ed tor's benefit

Peter Wolf VK7PW
31 Duffy Street,
Ainslie. 2602.

AR

ART UNION LOTTERY

The Maryborough (Qld) West State School is currenty running an Art Union permit number A5312 which will be of interest to your readers.

A l moneys raised will go toward completing an activ t es build ng the P and C is having built at the schoo

PRIZES — 1st Microbee 16 K Computer with green screen monitor, cassette recorder and an assortment of software Value $786.50

2nd Sanyo Video Recorder Value $699

3rd Dick Smith Wizzard Computer with "BASIC" cartridge Value $364.50

BOOK BUYERS PRIZE — (5 consecutive tickets) Choice of goods to the value of $150.

The Art Union closes on 13th July 1983 and will be drawn on 15th July 1983

Tickets are $1 each $5 a book and are available from the promoter — E. KING, 45 Wilson Street Maryborough Qld 4650 (A SASE would be apprec ated)

Yours faithfully,
E. L. King VK4OA
45 Wilson Street,
Maryborough, Qld 4650.

AR

CONCERNING COMMUNICATION

ve in a sma l country town in Western Aus tra a approximately five miles from the only phone box and I have passed all but the theory for my fu l ticket.

Hav ng $3000 and a good QTH I decided to make enqu r es about radio equ pment to set up my station

To my d smay the response has been poor to say the east All the arge outfits that advertise in ARA. Amateur Radio — and I wrote to quite a large number — fa led to reply The exception was Emtronics

I also sent money to one company that are advert sers of co-axia switches in Amateur Radio I wa ted weeks and finally after someth ng like two months I wrote aga n

F na ly I got the switch but no note of expalanation or apo ogy or anything to give me the confidence to deal with them aga n

I understand that companies advert se to provide a service and ga n revenue with their ads I suggest at the time of print ng on heavy demand products that quant ty in stock or wa ting t me for delivery, if any are a so printed

As we deal on a cash basis interest on accounts s taken nto considerat on by al. I feel that WIA does much to promote th s fascinating hobby which, in times of emergency, has been an extremely practica and staunch service to those both connected with amateur radio and those outs de ts fo lowing

The chaps I meet and Jack VK6AV, whose been around many a moon have helped me to get started on this fasc nating hobby and have offered me an open door to their shacks

Have a nice fe

C. Chew
c/- Kirup Post Office,
Kirup, WA 6251

AR

PLEASE NOTE

Letters to the Editor should be short and to the point. They will be easier to read and will not require shortening or summarising.

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE

NOTES ON THE PREDICTIONS

The mode of propagation used by IPS in compiling their predictions are reflected in the bar charts used to convert the Graflex symbols into a graphic picture

When generating the Graflex charts (reproduced in a number of publications) the following symbols are used

1 "." — Propagation is possible but probably less than 50% of the days of the month

2 "%" — Propagation is possible between 50% and 90% of the days of the month.

3 "F" — Propagation is possible by the first F mode on at least 90% of the days of the month unless there is a severe ionospheric disturbance

4 "M" — Propagation is possible by both first and second F modes The strongest mode is normally the first mode, but the vertical aerial pattern may influence the mode received.

5 "A" — High absorption, ie above the absorption limiting frequency but probably too close to it for good communication.

6 "X" — Complex mixtures of modes including the second E mode.

These are the most significant types we encounter The full lines or bars on the chart cover 2 3, 4 taking 5 into account. The broken lines or bars are depicted by 1. 6 is extremely hard to verify and is not taken into account

The paths from Eastern Australia are based on Canberra The paths from West Australia are from Perth Suitable allowance should be made on Eastern paths for geographical differences Times, as much as 1 hour difference between Victoria and Queensland in band openings occur. Often there is no signal available in one State, whereas the opposite effect occurs in the other State, they get the lot. Marginal differences produced by layer tilt and varying degrees of onisation can be very frustrating

Generally the predictions show that time of day when the path should be open between the two areas. All other factors notwithstanding

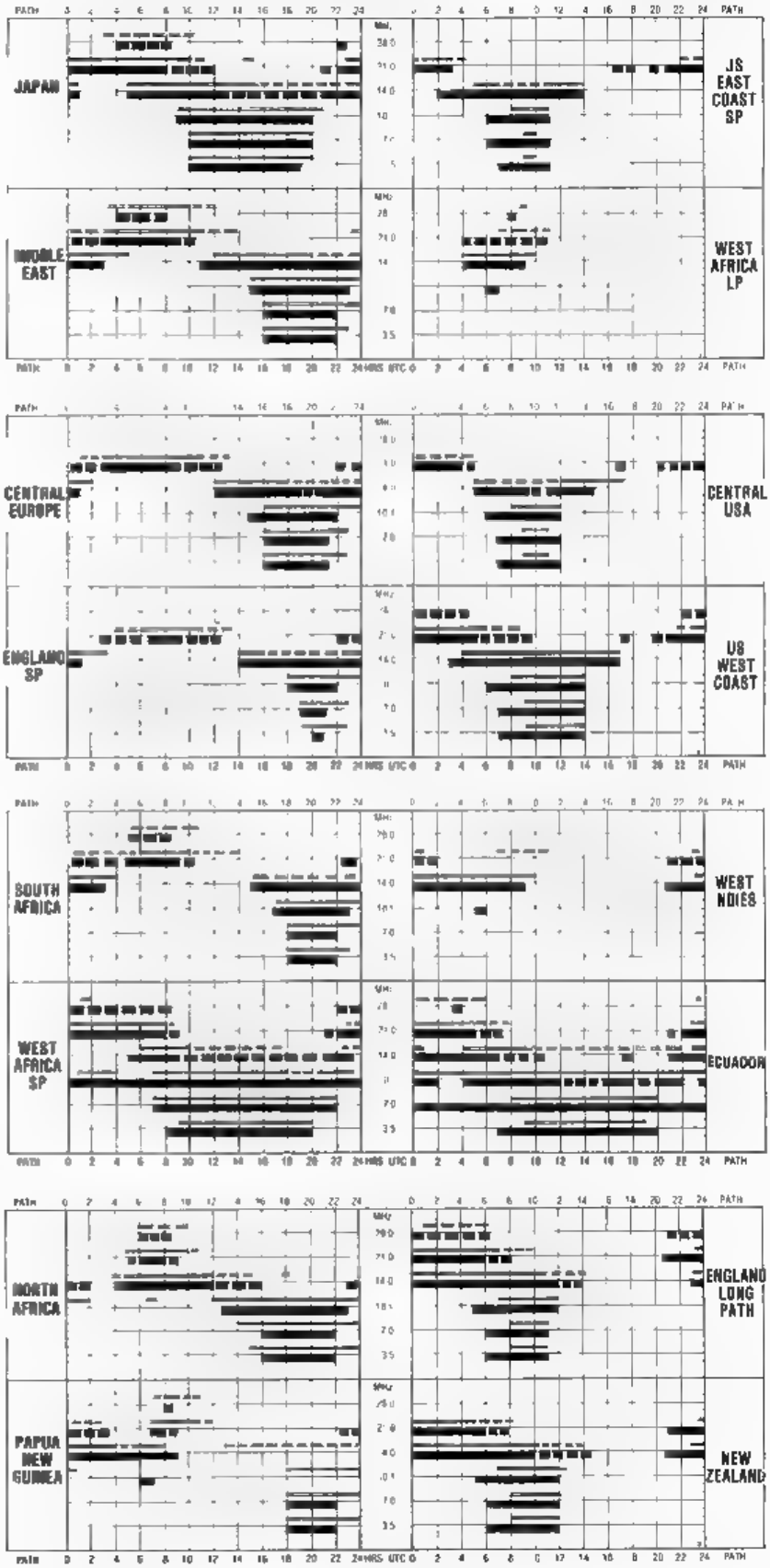
FROM WESTERN AUSTRALIA

FROM EASTERN AUSTRALIA

BETTER THAN 50% OF THE MONTH, BUT NOT EVERYDAY

LESS THAN 50% OF THE MONTH.

PATHS — Unless otherwise indicated (ie LP = Long Path) all paths are Short Path.



Predictions courtesy Department of Science and Environment IPS Sydney
All times universal UTC.

Silent Keys

It is with deep regret we record the passing of —

LEN ANSELL	VK2BTO
BERT HODGE	VK3HE
G K HOFFMAN	VK6NM
J C W PARK	VK6BB
J D PRYER	VK6KLA

Obituaries

L C ANSELL VK2BTO ex VK2TO

Len Ansell was born in England. He joined the Royal Navy as a boy telegraphist. Later he joined the Royal Australian Navy.

He joined the New South Wales Police in 1932 and became a member of the Police Wireless Station, VKG. In 1937 Len was transferred as Officer in Charge of Police Wireless Waratah — VKG3 — in Newcastle, a position he held until his retirement some years ago.

Len was a keen amateur and a well respected member of the community. He passed away on 23rd March 1983.

All who knew him extend their deepest sympathy to his wife and family.

F C Meyer VK2AAX

JIM RAFTER VK4PR

On 6th February 1983, after a short illness, Jimmy Rafter, the one and only "PETER RABBIT", as most amateurs throughout Australia and the DX world new him, became a silent key. Jim started his association with radio working for Music Masters, Brisbane and it was a natural choice for him to follow this through by service in the RAAF, first as technician, then his entry into aircrew as a WAG. The end of the war saw him serving with the 36th Sqdn in the Pacific Theatre of Operations. After a short spell with the USAAF, based on Guam, he returned to Australia, and entered the Department of Civil Aviation as a radio technician, at Brisbane Airport Workshops, until his untimely retirement on medical grounds in 1977. A keen amateur, DX'er, Rag Chewer, and competitor, he served in various bodies of the amateur radio fraternity, President of the Qld Branch of the WIA and foundation member of the Brisbane DX Club.

Jim is survived by a son, daughter-in-law, and two grandchildren. Two of Jim's sisters are residents of the USA.

His passing will leave another void in the ranks of amateur radio. As with most other amateurs Australian and overseas, we will miss him.

"Old hams never die, they just drift off frequency" . . . Anon

Ken Smith VK4KA

GEOFFREY HOFFMANN VK6NM

It is with deep regret that I advise the sudden passing of Geoffrey Hoffmann, VK6NM/MM, of Bowen boat harbour. The melody of CW will be sadly missed from the "Cornelius", the recent home of Geoff who passed away suddenly at Bowen on 12 March, 1983. He was a wizard with the key.

Geoff was a man of many talents. He obtained a B.Sc (Hons.) in Chemical Engineering at London University, but he gave away his office job with the CSR Company and returned to sailing. He purchased a Broome pearling lugger in 1973 and carefully transformed it into a comfortable home for his family and his shack.

Geoff loved sailing. He had earned the Yachting Federation's Yachtmaster's Certificate in 1980 and was an active member of the North Queensland Cruising Yacht Club. Many Townsville Amateur Radio Club members will remember his most entertaining and descriptive lecture of his recent circumnavigation of Australia.

Geoff had just passed an advanced Morse code examination for reciprocal overseas licensing. He will be sadly missed by his many friends.

Sincere sympathy is extended to his wife Nancy and daughter, Nicole.

Roger Cordukes VK4CO

JOAN FUDGE VK7ZYL

It is with deep regret we announce the passing of Joan Fudge, of Ulverstone, on 2nd March 1983 after a long battle with illness.

Despite poor health, Joan was involved with many different activities and was to be heard, until shortly before her death, talking cheerfully to people on the air.

Joan became active in amateur radio some years ago and took out a limited licence in 1981. Her cheery voice soon became well known on the two metre repeaters around the state, particularly on the north-west coast.

She was studying, amongst other things, computer programming whilst tirelessly supporting her husband Peter in his computer business.

From 1979 to 1983 Joan was secretary of the North-West Branch of the Tasmanian Division of the WIA and was the Branch news co-ordinator. She worked to promote amateur radio in the local schools, giving up her time to help the children with activities.

She will be sadly missed by all amateurs in Tasmania particularly those in the north-west.

Sincere sympathy is extended to her husband Peter and children, Maria, Juliet and Jonathan.

Martin Fox VK7MM

WARNING!!

Disposing of your old rig?? Please ensure it goes ONLY to someone licensed to use it on YOUR bands.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

*** Please insert STD code with phone numbers when you advertise.**

- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

TRADE HAMADS

Conditions for commercial advertising are as follows: The rate is $15 for 4 lines, plus $2 per line (or part thereof) minimum charge $15 pre-payable. Copy is required by the first day of the month preceding publication.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 SASE to: R. J. & U. S. Imports, Box 157, Mortdale, NSW 2223. (No enquiries at office: 11 Macken St, Oakley, 2223.)

CB RADIOS $69; walkie talkies, short wave radios, military, outback, business, amateur, marine, repairs, RTTY Siemens 100A printer $120; base mic., $45; ultrasonic alarm, $35; all ham bands on a single 6 ft. whip, 1.8 to 30 MHz, for base or mobile, $300; aerials, installation, demonstrations, 40 ch. CB conversions, accessories, new rigs weekly. Bridge Disposals, 12 Old Town Plaza, opp. Bankstown Railway Station, NSW. Mail order service and all enquiries to 2 Griffith Avenue, Roseville 2069, or phone Sam VK2BVS, 7 pm to 9 pm only, on (02) 407 1066.

WANTED — ACT

ANTENNA, YAGI TYPE, for 20 metres, antenna rotator and associated hardware. Also DC power supply for Kenwood TS 820S. Contact Ron Van Santen VK1VS. Ph: (062) 58 6871.

WANTED — VIC

Next Page Please.

CIRCUIT DIAGRAM FOR DRAKE SSR-1 receiver. Will pay all charges for photocopy and necessary post charges. Write to: G. Himolij, 118 Wilson Rd, Newcomb, Geelong, Vic 3219.

TRI-BAND YAGI TH3JNR or similar as cheap as possible for local scout group with not much money to spend. Gordon VK3DBU/SAK. 15 Murdock St, Hopetoun, Vic 3396. Ph: (050) 83 3380.

WANTED — QLD

WAMECO MEM-2 16K $100 memory board. Bare, assembled, or kit. Prefer no rams. Contact J. Hanran. Ph: (077) 71 2285 after 8PM.

WANTED — WA

KWM2 MIC PLUG and power lead or power plug only. Circuit diagram for BZ3 AWA receiver. All letters answered. C. Chew, PO Kirup 6251.

FOR SALE — NSW

FRG-7 COMMUNICATIONS RX. SSB filter installed. $210. Nick VK2EMB, Hazelbrook. Ph: (047) 58 6581.

ICOM IC701. Mic. PS701, RM3 controller, all $920; ICOM IC211, $520; ICOM IC551, all optional boards, microwave modules linear, 2 aerials, $700; ICOM IC245 $260; AR240 handheld, case, charger, $230; TRAM XL5 modified on 10 m, 1 aerial, $100; Macrotronics RTTY interface, software, for Apple, MDK17 modem, $350; AR22 rotator, $45; Roger VK2DNX. Ph: (02) 546 1927.

KENWOOD TS520 HF TRANSCEIVER 240 VAC/12 VDC — Mic — H'Book. The complete station $395. VK2BHO QTHR. Ph: (042) 96 2142.

TOWERS: Two homebrew towers using 1" angle iron (1) 24 ft long having 35" square base and 19" square top (2) 18'11" long having 20" square base and 9"square top. Each is four-legged. No fittings attached. The two for $80, at Springwood NSW. VK2VJD. Ph: (047) 51 4257 evenings please.

YAESU FTV-707 V/U TRANSVERTER with 6 metre module, manual and cables. Never used. Excellent condition. $200. Also Yaesu FV-707DM external scanning VFO. Manual included. Excellent condition. $200. Dennis VK2KVW QTHR. Ph: (02) 645 3441 (AH).

FOR SALE — VIC

AERIAL HY GAIN 14AVQ $60; Werner Wulf 4 element 6 m beam $85; Yaesu RSM-2 HF mobile whips 80-10 m c/w gutter mount base $100; Chirnside 10 m 3 element beam (incomplete $70); battery charger $5; 12 element microlink 432 MHz beam $25. Lionel VK3NM QTHR. Ph: (03) 568 2733 (BH), 898 3710 (AH).

ANTENNA 2 M ATN 8 el Yagi $25. Archer rotator with 30 m cable $60. Philips FM 321, 432 MHz transceiver $120. VK3AEP QTHR. Ph: (03) 580 2568.

COLLINS R390A/URR RECEIVER excellent condition, with metal cabinet, service manual, spare valves $500. Collins R105A/ARR15 receiver, excellent condition $60. Collins R101A/ARN-6 compass receiver $60. G. Himolij, 118 Wilson Rd, Newcomb, Geelong, Vic 3219.

COMPLETE SWL STATION. FRG 7000. Auteckfilter, SX-10 preselector, battery eliminator, phones, in mint condition $500. A. Harrison, Nilma, Vic. Ph: (056) 23 2450.

COMTRONIX FM80 10 metre FM transceiver, mint condition $130. Ken VK3WM QTHR. Ph: (03) 288 2180.

DIVCO-WAYNE HETRO-FREQ-METER AN/URM-32A 125 kHz — 1 GHz 230 V VGC $100. Home brew linamp grounded grid 25-40 MHz 12V DC, spare 6JG6A tube, circuit $80. RCA rec tube manual RC-27 $3. RSGB handbook 1963 VGC $5. ITU callsigns 20th edition 1959 $2. Pye 4½" CRO $20. Ass valve FM units hi-band $5 each. Jeff L-30409. Ph: (03) 546 3940 (AH) QTHR.

FT 480R 2 METRE ALL MODE 1 W/10 W, 30 W PEP SSB as new $350. Tri-band beam $150. 2 low band radios, not working $10 each. Speakers 10 W 2 way bookshelf size $20 pair. Cash in hand buyers only. All prices firm. Contact Phil VK3DCZ. Ph: (03) 723 1669.

KENWOOD TS 520S VGC new finals; CW filter $450. AT200 Tuner VGC $130; MC-50 Kenwood desk mike $30, or this complete station $600. VK3BXN QTHR. Ph: (03) 528 6527.

SHACK CLEAROUT — C42 36-60 MHz 25 W Tx/Rx with xtals $30. PMG VHF FM repeater Tx (19" rack mount) with p/s $25. 2 m 5 W AM aircraft Tx/Rx model STR-9X with manual and xtal $15. 6 m FM 25 W STC carphone with test set $10. 6 m AM Pye carphone $6. Above lot for $70. 100 kHz CRO $15. 600 V p/s (parts) $5. 2X Astor VHF Tx (parts) $5. Assortment ex Telecom intercoms $3. WIA correspondence course for LOCP — books 2 and 3 $40 —other bits and pieces. Ph: (03) 523 5356 (AH). Not Saturday.

WESTON ELECTRONICS DX33, 3 el. tri-band, trap beam antenna, 14' boom, 2 kW PEP, excellent performer, very clean condition, $150. ICOM IC22A 2 m FM 10 W transceiver, xtals for 8 repeater and 7 simplex channels. As new condition, complete with mic, mobile mount, handbook, etc $165 VK3ARZ QTHR. Ph (03) 584 9512.

YAESU FT107 M all mode analogue and digital display transceiver, covers 10-160 metres including WARC and WWV/JJY. Has 12 memories, AC-DC cables, scanning microphone and instruction manual. Excellent condition, very little use, $825. Bill. Ph: (03) 584 3521.

YAESU FT7 VGC no mods $375. AWA 1955 cathode ray oscillograph. Good cond. Offer. Power supply 15 amp two meters ECS120. VK3PCS. Ph: (03) 546 1315.

FOR SALE — QLD

DECEASED ESTATE VK4PR JIM RAFTER. KWM 1 Collins Tx type 81 Hammarlund RX. Hammarlund Tx (4022 finals) 30 ft. Lightweight tilt over tower. Tri-band quad commercial hub fibreglass spreaders. CDE MK3 rotator with control box. Coax cables. Box metal tubes. Box Tx tubes. Box old type tubes. Box 9 pin tubes. 6 kc AWA crystal. Printed circuit board holder. Miniature P/C board drill vert press (Sun Hayo). 8 mm Edipel film reviewer. Speakers. Variable voltage power supplies. Chassis with power trannies. Variable condensers. Coil winding board decade box. Desk mikes, headphones. Heathkit solid state volt meter. Soldering iron. Metal cabinets. Crystal checker. Roller inductor. Oscilloscope. Box assorted crystals. Boxes resistors and condensers. Dow key coax changeover relays. Aluminium panels. Magazines . . . QST 1946 to 1982 bound and loose copies . . . 73 magazines '76/81 . . . Ham Radio, Practical Radio . . . CQ . . . Amateur Radio and ARA mags. Handbooks . . . Terman radio engineering. Available for inspection by arrangement . . . best offers accepted. Contact Ken Smith VK4KA QTHR. Ph: (07) 38 4051.

TONO THETA 7000-E Communications Computer C/W power supply, cables and full documentation. Ideal keyboard for CW/RTTY/ASCII. *Mint condition* $650 ONO. VK4AJR QTHR. 38 Merryl St, Rasmussen, Townsville, Qld 4815.

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HIDAKA V833 TRI-BAND beam $150; Hills winch-up triangular lattice tower 11 m $200; CDE Ham II rotator and controller, working but needs attention $125; Standard SR-C146A 2 m FM HH Txcvr 5 chan $140; Swan 350 with PS and Vox, working but needs alignment $250. All items with manuals and all prices negotiable. EA June 71 Sept 81 incl, what offers? VK6KD QTHR. Ph: (09) 405 2841.

FOR SALE — TAS

WEBSTER BANDSPANNER, American made, single mobile whip antenna, covers 80 m-10 m. Fully adjustable. $70. ICOM 20 amp power supply, built-in speaker, matches ICOM 701, as new. $125. VK7MG QTHR. Ph: (002) 57 8220.

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Dual VFO's. Dual VFO's give an extra stored frequency for scanning (memory scan scans 5 memories plus 2 VFO's) and each VFO has a different tuning rate for easy QSY.

	VFO A	VFO B
IC-25A	5 KHz	25 KHz
IC-45A	5 KHz	25 KHz

5 Memories. Instant access to most used frequencies. VFO A information is transferred to the selected memory by pushing the write (IC-25A) or W/CK (IC-45A) button.

Priority Channel. Any memory channel may be monitored for activity on a sample basis, every 5 seconds, without disruption of a QSO conducted on a VFO frequency.

Led Bar Meter. Shows strength of received signal as well as relative transmitter output from the fully protected final RF amplifier. APC (automatic power control) is used to detect SWR and adjust the power output to a safe level.

Simplex/Duplex Operation. Standard 600 KHz offset initializes into radio at turn on. Offset may be changed by pressing the priority button while in VFO operation. Rotating the main tuning knob will now change the offset up or down and the offset will be displayed on the frequency readout.

Adjustable Power Levels.

	Hi Pwr	Lo Pwr
IC-25A	25 W	1 W
IC-25H	45 W	2 W
IC-45A	10 W	1 W

Pulling the squelch knob out places the unit into low power. Both the high and low power may be independently set to accommodate your simplex/repeater requirements or amplifier input characteristics.

Nor/Rev Capability. Use of this button on the IC-25A, or the W/CK button on IC-45A, in the duplex mode, allows one touch monitoring of the repeater input frequency. If simplex operation is possible you will know instantly.

Scanning. Pushing the S/S button initiates the scan circuitry. With the mode switch in a memory position the unit will scan all 5 memories plus the 2VFO frequencies.

With the mode switch in VFO position, the unit will scan the entire band or the portion of the band defined by memories 1 and 2. Full band scan or program band scan is selected from the front panel in the IC-25A, internally on the IC-45A.

Both units have internally switched scanning choices of adjustable delay period after a carrier is received then resume scan, or resume on carrier drop.

The Most Compact FM Mobiles on the Market. Fits in the smallest of places. Stacking, matching Mobile Mounts for complete mobile communications for your car.

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